

**HISTORY OF ZOOLOGY IN WESTERN AUSTRALIA.**

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PART II.—1791-1829.

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In a former paper<sup>1</sup> I brought together all the information as to the Zoology of Western Australia which had been gleaned by the Dutch and the Englishman, Dampier, up to the close of the 17th Century.

During the 18th Century, very little further information as to the Fauna of our State was obtained. We know that some dozen ships visited our coast, but of these only two left any record of their observations, namely, those commanded by Vancouver and d'Entrecasteaux which visited our south coast in the last decade of the century, and to which I shall refer shortly.

Meanwhile, however, the famous voyage of Captain Cook had revealed to the world the more fertile eastern shores of the continent, and the discoveries of Sir Joseph Banks and Dr. Solander at last drew the attention of scientists to the peculiarities of the fauna and flora of the new land. The fact that an altogether new type of mammal existed in Australia was emphasised by the introduction of the name kangaroo, though Banks did not give nearly such a complete description of the animal as Pelsart had done many years earlier.

The settlers in Port Jackson soon began to collect and send to England specimens of the new and curious mammals, birds, fish and insects with which they met, and the general characteristics of the fauna of Australia rapidly became known to the scientific world. For a long time, however, no attempt was made to record from what part of the continent the specimens came, consequently most of the species described were recorded as from New Holland, and even up to the present time we are ignorant of the exact habitats of many of the New Holland insects collected in the period with which I propose now to deal.

In the year 1791, Captain George Vancouver, in command of H.M.S.S. "Discovery" and "Chatham," passed along the south coast of Australia on his way to the Pacific Ocean. On September 28th he discovered a fine harbour which he called King George the Third Sound, and on the following day "a small, high island was called Seal Island, being a great resort of those animals." The two ships

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<sup>1</sup> Journal of Nat. Hist. and Sci. Soc. of W.A., Vol. V.

remained in the Sound till the 11th of October, and the officers devoted much of their time to exploring and surveying the neighbourhood and especially the two inner harbours. "In our way out of the north-eastern harbour," says Vancouver, "the boats grounded on a bank we had not before perceived; this was covered with oysters of a most delicious flavour on which we sumptuously regaled; and loading, in about half-an-hour, the boats for our friends on board, we commemorated the discovery by calling it Oyster Harbour."

On October 7th, "as we proceeded to the upper part of Oyster Harbour, our attention was directed to several large black swans<sup>1</sup> in very stately attitudes swimming on the water, and when flying discovering the under parts of their wings and breasts to be white; this is all the description we were enabled to give of them, since they were excessively shy, and we very indifferent marksmen."

In his general summary of the results of his observations he writes as follows:—

"Of the animal kingdom, so far as relates to the tenants of the earth, little information was derived. The only quadruped seen was one dead kangaroo; the dung, however, of these or some other animals feeding on vegetables, was almost everywhere met with, and frequently so fresh as to indicate that the animal could not be far removed.

"Of the birds that live in or resort to the woods, the vulture may be said to be the most common, as we saw several of this species, or at least birds that were so considered. Hawks of the falcon tribe with several others of that genus; a bird much resembling the English crow, parrots, parroquets, and a variety of small birds, some of which sung very melodiously, were those which attracted our attention the most; but all were so excessively wild and watchful that few specimens could be procured.

"Of the waterfowl, the black swan seemed as numerous as any other species of aquatic birds in the neighbourhood of Oyster Harbour, but they were seen in no other place. There were also black and white pelicans<sup>2</sup> of a large sort, seen at a distance; and though ducks were in great numbers, we were very unsuccessful in taking them. A very peculiar one was shot,<sup>3</sup> of a darkish-grey plumage, with a bag like that of a lizard hanging under its throat, which smelt so intolerably of musk that it scented nearly the whole ship. There were also many grey curlews,<sup>4</sup> and sea-pies<sup>5</sup>; of the latter we procured a few which were excellent eating. The aquatic birds before enumerated, with shags, the common gull<sup>6</sup>, two or three sorts of tern, and a few small penguins<sup>7</sup> of a bluish colour, included the whole of the feathered tribe in the vicinity of the shores.

<sup>1</sup> *Chenopsis atrata*, Latham.

<sup>2</sup> *Pelecanus conspicillatus*, Temm.

<sup>3</sup> *Biziura lobata*, Shaw (named from this specimen.)

<sup>4</sup> *Numenius cyanopus*, Vieillot.

<sup>5</sup> *Haematopus ostralegus*, Linn.

<sup>6</sup> *Larus novaehollandiae*, Stephens.

<sup>7</sup> *Eudyptula minor*, Forster.

“With the productions of the sea we were not much more acquainted, which is rather to be attributed to our want of skill as fishermen than to its want of bounty. Some of the few fish we caught were very excellent, particularly of the larger sort; one much resembling the snook, and another the calipevar of Jamaica, both of high flavour; as was a kind of fish, not unlike, nor inferior in quality to, the English red mullet.<sup>1</sup> These with the common white mullet, rock fish, mackerel, herrings, and a variety of small fish, were those we procured, though not in any abundance.

“Whilst on the coast, whales and seals<sup>2</sup> were frequently playing about the ship; of the latter we saw about a score at one time on Seal Island. The little trouble these animals took to avoid us indicated their not being accustomed to such visitors. The throat and belly of these seals, which were of a large sort, were nearly white; between the head and shoulders the neck rises in a kind of crest, which, with the back, was of a light brown colour; their hair was exceedingly coarse, the carcase very poor, and afforded little blubber, which, however, may be imputable to the season.

“Reptiles and noxious animals seemed by no means to be numerous, as only two or three yellow and bronze-coloured snakes were seen, which were good eating. These, with a few lizards of the common sort, and some about eight or nine inches long of a thick clumsy make, dark colour, and altogether excessively ugly, were what composed that race of animals. Some beautiful beetles, common flies, and muskitoes were occasionally met with, but not in such numbers as to produce inconvenience.”

This summary, which was probably compiled by Menzies, the botanist, who was naturalist to the expedition, mentions all the creatures noted in the journal of daily events; except that on one occasion they found on the top of a native hut “a fresh skin of a fish commonly called leather-jacket.”

After leaving King George’s Sound, Vancouver followed the coast eastward as far as Termination Island, near Esperancee, where on October 22, they “noticed more coast and oceanic birds than they had seen on any other part of the shores; as, besides gunnets,<sup>3</sup> and two or three different sorts of tern, albatrosses and petrels, particularly the black and sooty, were in great abundance.”

Presumably Menzies took some specimens back with him to England, but there seems to be no record of what became of them.

In August, 1791, the French Government despatched two ships, the “Recherche” and the “Espérance,” under the command of d’Entrecasteaux, to search for La Perouse. After touching at Teneriffe and the Cape of Good Hope, they reached Tasmania in April, 1792, then visited New Caledonia and a number of other islands as far as

<sup>1</sup> *Upeneichthys porosus*, Cuv. and Val.

<sup>2</sup> *Zalophus lobatus*, Gray.

<sup>3</sup> *Sula serrator*, Gray.

the Moluccas. Leaving Amboyna in October, they sailed down the coast of Western Australia which, however, they did not sight till they reached the neighbourhood of Cape Leeuwin on December 7th. The expedition was accompanied by two naturalists, the zoologist Riche, after whom Cape Riche on the South coast was named, and the botanist Labillardière. The latter and Captain d'Entrecasteaux both wrote accounts of the voyage, from which the following information as to the animals they met with is taken.

On the islands of the Recherche Archipelago, which they discovered, they found "many seals of the species which Buffon denominates *petit phoque*, and Linnaeus *phoca pusilla*,<sup>1</sup> which basked quietly in the sun upon the rocks and the sandy beach, and some of them allowed themselves to be knocked on the head." They were of various colours—white, grey (more or less deep), and brown (bordering upon black). They were, however, all of the same species. Labillardière fired at one, which lay at a distance from him. Finding himself wounded and distrusting his strength, he durst not take to the water. Immediately another very large one, hearing the cries of that which had been wounded, came and licked the blood with apparent satisfaction, but at the sight of a long-boat, which was steering towards them, they plunged into the sea. "Soon afterwards, more of these animals were seen advancing towards the beach. Before they ventured upon land, they never failed to raise their bodies nearly half out of the water, and they remained some time in that attitude, smelling and gazing all round, in order to discover whether or not they could safely come and repose upon the rocks." D'Entrecasteaux tells us that they appeared to him, as to everyone else, not at all disagreeable to eat.

"On the same islands there was a numerous flock of geese,<sup>2</sup> several of which allowed themselves to be taken by the hand; but the rest, apprized of the danger, immediately flew away. This new species is somewhat smaller than our wild swan, and of an ash-coloured grey, a little lighter on the belly. The bill is blackish with a tumour of sulphur-yellow at its base. The legs are slightly tinged with red. Riche named them *Anas Terrae Leeuwin*. D'Entrecasteaux tells us that their flesh was much more delicate than that of European geese.

"Two sea-gulls," a male and a female, of the species called by Buffon *bourgmestre*, and by Linnaeus *Larus fuscus*, perched upon the heights at a small distance from us," says Labillardière. "The female having been shot, the male, frightened by the noise of the explosion, took to flight, but presently returned, and being determined not to abandon his mate, was killed by her side. On one of the islands I killed the charming yellow turtle dove, remarkable for six or eight golden feathers towards the bases of its wings, and

<sup>1</sup> *Zalophus lobatus*, Grav.

<sup>2</sup> *Cereopsis novahollandiae*, Latham (Cape Barren Goose).

<sup>3</sup> *Catharacta lombergi*, Mathews (Australian Skua).

which induced White to call it the golden-winged pigeon.<sup>1</sup> (See page 43 where he has given a good figure of it.) I had before found the same species at Cape Diemen.

"There we also caught many penguins," of the species called *Aptenodyta minor*, and which Captain Cook likewise met with at New Zealand. They were in the same manner concealed in very deep holes in the rocks, from whence it was frequently very difficult to expel them." "Penguins occur in great numbers on all the islands," says d'Entrecasteaux, "I did not eat them, but our crews lived on them during our stay at this anchorage, and found them better than the seals."

The sharks there are of an enormous size. One followed our boats as if he longed for one of us. They were of the most common species, the *Squalus carcharias*.<sup>2</sup> On board the "Esperance" they caught one which was about thirteen feet in length and of more than proportionate bulk.

Some fishes were caught with the hook, among which were the *Labrus cyprinoides*, and several new species of the genus *perca*. During the first days of their stay they only caught small numbers, but at the end the fish became much more abundant, doubtless owing to the fragments thrown over from the frigates attracting them.

A party landed in Esperance Bay, which they discovered, and Riche having got separated from the rest was lost in the bush. Search parties were sent out for him without success, but ultimately he found his way back to the beach after 54 hours without food.

In the course of his wanderings he saw a large cassowary<sup>3</sup> which escaped behind some tall bushes. He tells us "I encountered three kangaroos of the large species (*Didelphis gigantea*, Lin.) They were of different ages, only one being adult; they were not very frightened of me, for having run very quickly for a distance of fifty feet, they sat down on their haunches in front of me. It appears that the young follow their mother for a long time, and do not leave her even when she has given birth to another young one. I had already encountered on the previous evening one of these animals followed by a young one about two-thirds of her size. Nothing is more remarkable than the manner in which these animals run; they do not go upright, nor do they run on four legs; but in advancing the animal holds its body curved forwards and bent horizontal as in other quadrupeds, without however resting on the front feet, which are very short and folded against its chest; in this way it ambles, if I may thus express it, on its two hind feet. It was always in this attitude that I saw six individuals of this species running at different times, while I was lost on this coast. The great muscular strength of their thighs explains how, in running, they can hold themselves

<sup>1</sup> *Phaps chalcoptera*, Latham (Bronzewing Pigeon).

<sup>2</sup> *Eudyptula minor*, Forster.

<sup>3</sup> *Prionace glauca*, Linn. (Blue Shark).

<sup>4</sup> *Dromiceius novaehollandiae*, Latham (Emu).

in a position which is impossible for all other quadrupeds; and the inspection of their skeleton proves that they cannot run upright.

"There also exists in this neighbourhood a carnivorous animal of the genus or at least of the family of dogs.<sup>1</sup> I met with its tracks on the sandy shore of the lake, and it would appear from the footprints that it is at least as large as a wolf.

"A large variety of birds enlivened the scene; I specially noted the large white parrot with a red crest,<sup>2</sup> which Linnaeus described under the name of *Psittacus moluccensis*. The mosquitoes fatigued me much. The species were the *Musca domestica*, the *Stomoxis irritans* and the *Culex pipiens* of Fabricius.

"The Oyster-catcher (*Haematopus ostralegus*), and several species of *Charadrius*, covered the shore. I found large numbers of limpets, turbos, and haliotis."

Labillardière, who was a member of one of the search parties, only saw two species of birds, "a muscicapa, which I afterwards met with in the Moluccas, and the fine species of red-breasted cockatoos, *Psittacus moluccensis*, which are met with in the same islands, in flocks of many hundreds. When I attempted to approach them they always removed to a great distance, flying rapidly, with sudden starts, and emitting loud and disagreeable shrieks. M. Mérite, leader of another of the search parties, killed a snake five feet long. His party also roused several partridges, as well as numerous flocks of parrots.

The collections made by Labillardière were taken to the Musée d'Histoire Naturelle at Paris, and some of the species were subsequently described by the French zoologists of the period.

In the first three decades of the Nineteenth Century English and French navigators completed the survey of the whole coast of Australia, which thenceforth has appeared on our charts with little alteration. All the most important of the expeditions were accompanied by professional naturalists who made collections which were taken to Europe and were described by authorities in the different groups. At this period the scientific study of the Western Australian fauna really commenced, and the work has continued up to the present time.

The first of these surveying expeditions to arrive on our coast was accompanied by Francois Péron, perhaps the most distinguished naturalist whose discoveries we shall have to chronicle in this history. Péron was zoologist on board the "Géographe," which, in company with the "Naturaliste," reached the south-west coast on May 27, 1801. As showing the zeal and energy of this great man we find that on the same evening he and Maugé took a haul of the dredge. "We hoped to obtain, by its means," he said, "the first

<sup>1</sup> *Canis dingo*, Blumenb. (Dingo).

<sup>2</sup> *Cacatua leadbeateri*, Vigors (Pink Cockatoo).

objects of our Australian collection, and our attempt was rewarded as richly as we could desire."

The next day "several whales passed very near our vessels. At midnight, we dredged again, and brought it up filled with a crowd of interesting objects, in describing and drawing which Lesueur and I worked all the rest of the night."

On May 31st they discovered Cape Naturaliste and entered Geographe Bay. Next day a considerable party landed, and it being low tide, Péron walked along the shore. "I quickly collected a fairly large number of new objects," he says, "amongst which was a charming living species of *Orbulites*.<sup>1</sup> It is known that the *Orbulites* are a small kind of solid zoophytes, confounded, previous to the time of Lamarck, with the true *Nummulites*, and these singular animals were only previously known in the fossil state. This discovery is not the only one of its kind that we shall have occasion to relate in the course of this narrative, and the shores of New Holland will furnish us frequently with new proofs of the catastrophes of nature.

"Crossing the dunes I came upon a marsh whose banks were everywhere covered with *Salicornia*, and on the brackish waters of which I saw several troops of black swans swimming with elegance.

Having waded across the water (named the Vasse River) and struck into the forest he remarks: "The saline quality of the soil seems to repel all animals; at least, I could see none, and the traces of kangaroos which I noticed in the sand, were very few. Insects even seemed exiled from these parts, always excepting ants, whose black legions, particularly on the slopes of the dunes, were everywhere as innumerable as they were disagreeable. I recognised several new species among them, of which one, remarkable for its great size, closely resembles the *Formica gulosa* of Fabricius; but the account of these animals will be treated more in detail in another part of my works."

Unfortunately Péron did not live to write this portion of his work to which there are frequent references and which was evidently intended to be a Natural History of Australia. The scientific descriptions of all the new animals met with were to have been given in this volume and only the names of the more striking species are mentioned in the general account of the voyage, which was the only part completed. From this it results that almost all the new names given by Péron remain *nomina nuda* and cannot be referred with certainty to the species to which he gave them.

A storm coming on drove them out of Geographe Bay, and during the night the two ships became separated. The commander, Baudin, had arranged that Rottnest Island should be the first rendezvous and Sharks Bay the second, but for some unexplained reason he failed to call at Rottnest where he might have rejoined his consort, but went straight on to Sharks Bay.

<sup>1</sup> *Orbitolites complanata*, Lamk.

To return to Péron's narrative, we are told that on June 16th, in lat. 32deg. 42min. 57sec. S., "M. Maugé and I profited by a moment of calm weather to make another haul of the dredge along this coast. This attempt procured us new treasures, notably a species of sponge remarkable for its clear purple colour; a liquid of the same shade could be squeezed from it by a slight pressure, and this liquid, spread on different substances, resisted the action of the air perfectly, and even that of several alkalies."

On June 27th they were off Bernier Island. "On every side we were surrounded by great shoals of Salpa, Doris, Medusae, Beroës and Porpitas, genera of molluses and zoophytes. . . . The prodigious numbers of these animals, their changing and curious shapes, their delicate colours, the elegance of their movements, and the agility of their evolutions, formed an agreeable spectacle for all our companions; and for my friend Lesueur, my colleague Maugé and myself, such an abundance was a great subject of pleasure and enthusiasm.

In the midst of these innocent and graceful legions appeared large numbers of dangerous reptiles which, gliding easily over the surface of the waves, appeared to be hunting a troop of little chupeas which fled precipitately towards the high seas.

These marine snakes, of which we shall often have to speak later, have been so badly observed by naturalists up to the present time that I think I must enter here into some detail as to their structure. All these marine animals differ from terrestrial reptiles by their flattened tail, which has the form of a small oar, and by their body compressed like that of an eel and almost angular below. They are of very various and sometimes very brilliant colours. Some have the body of a uniform tint, either grey or yellow or green or bluish; others are ringed with blue, white, red, green, black, etc.; some are marked with large more or less regular spots; others only have minute spots, elegantly distributed all over the surface of their body. One of the species is especially remarkable for the colour of its head, which is red with purple reflections; it is the 'sea-snake with a red head' of Dampier, who recognised it first in this locality. Like terrestrial reptiles, some are quite harmless, others are armed with venomous fangs. As to size, we found them from a length of 30-40cms. (12-16ins.) up to 3 or even 4 metres (9-12ft.).

"Their habitat is not confined to the sea-shore; we observed several at a distance of 300 or 400 miles from all land; and what is more extraordinary we never saw any on the continent or the islands. From this observation, I doubtless cannot conclude that they do not inhabit the land; but yet we never encountered them there; and in connection with animals so singular and so little known, the impartial observer should not omit any important fact, even though he cannot give any explanation of it.

Marine serpents breed exclusively in the warmest seas of the globe, especially in the Indian Ocean, in the Persian Gulf, in the



Red Sea, and in that which bathes the coasts of the N.W. and N. of New Holland; at least this is the conclusion I have reached from my own observations and from the numerous researches on this subject which I have made in the narratives of travellers. The high temperature of these seas, the calm which they habitually enjoy, and the multiplicity of the animals which swim in them and on which these snakes feed, appear to me to be the principal reasons for their predilection for equatorial seas.

On opening the stomachs of several animals of this genus, I have found them chiefly filled with small fish and with divers pelagic crustaceans, but they, in their turn, become the prey of numerous sharks which live in these seas. Several times, in fact, I found sea-snakes more or less altered by digestion in the stomachs of these scavengers.

“At first I found it difficult to conceive how such nimble animals could become the prey of these large sharks whose movements are so clumsy and stupid, but afterwards, from observing more of these reptiles, I believe I discovered in one of their habits the cause of this phenomenon. Often these snakes may be seen asleep floating on the surface of the water; their sleep is then so profound that our ship passing sometimes quite near them did not waken them by the sound of its movement, nor by the considerable waves it produced, nor by the customary cries of the sailors. Doubtless it is in this state of lethargy that the clumsy sharks manage to seize them; at least it seems to me impossible to imagine any other solution. As to the cause of this sleep itself, perhaps it depends, as in several terrestrial reptiles, on the species of stupor which, in the animals of this family, so frequently accompanies the process of digestion.

“These marine reptiles swim and dive with equal facility; often at the very moment when we thought we could seize them with our net they disappeared from sight, and diving to great distances below the waves, they remained for half-an-hour or more before returning to the surface, or only re-appeared at very great distances from the point where we had seen them dive.

“All these curious habits and all these differences of structure, uniting to separate the pelagic snakes from those of the land, have led me to create a distinct family for them. It will be seen in another part of my work what are the more special reasons for this division.

“Whilst the general interest was still engrossed by so many varied objects, a great number of whales were suddenly observed advancing towards us with all the rapidity of which these animals are capable. On no other occasion did such a spectacle come under my observation. . . . . The multitude of the cetaceans, their enormous size, their rapid evolutions and their playful frolics all appeared to me less astonishing than the sight of these powerful colossi

leaping perpendicularly from the waves, standing, so-to-say, on the tips of their tails, spreading out their vast flippers, falling back on the waves, bursting them asunder and finally disappearing amidst torrents of foam and spray. . . . Sometimes a numerous troop of these whales seemed to advance in a long line; one would have supposed that they were then competing in suppleness and velocity; at other times on the contrary, one behind the other in single file, they swam with a sort of deliberation, alternately plunging beneath the waves and reappearing on the surface. Frequently we saw them performing their evolutions in pairs with a sort of mutual complacency, which made us suspect that it was the breeding season.

"In the midst of these great objects of observation, the evening appeared to come on very rapidly, and when the night fell, forcing us to let go the anchor, the whole company still had their gaze riveted on the whales.

"Redoubtable though these animals may be from their mass, from the strength of their flippers and tail, as well as from the speed with which they swim, nature has nevertheless opposed rivals to them, and the terrible sawfish breeds on these shores to carry on an implacable and murderous warfare against them. This Australian sawfish<sup>1</sup> differs from that of the north, especially by the possession of two long fringes or flaps, from 25 to 30 cms. in length, and 8 to 10 mms. in breadth, which, placed on the sides of the saw, towards its middle part, float freely in the water. Like that of the North, the Australian sawfish is capable of attaining large dimensions, and several of them appeared to me to be not less than 4 or 5 metres (12 to 15ft.) in length. I have already spoken, in the chapter on the Land of Leeuwin, of the battle between one of these animals and a whale. We were not long in seeing another in Sharks Bay. It took place during the night, under a beautiful clear moon, quite near our ship. The two adversaries appeared to fight with equal ferocity. The whale, especially, made prodigious leaps, hurtled from the water almost uninterruptedly, and appeared much tired from the attack which it had to sustain. We could not see the result of the combat, the two champions gradually became more distant.

"This extraordinary abundance of whales in Sharks Bay must some day give it considerable importance in this fishery; in fact it will be as easy as profitable. Strangers to all species of attack on the part of man, the whales in these regions have not yet learned to flee his presence or to mistrust his traces, and such was their indifference to our presence that, in navigating the interior of the Bay, we were often afraid of seeing our boats smashed by these enormous animals which rose close beside us in search of the air which they need."

On the 28th of June they anchored off Bernier Island, and on the following day Péron landed on the island. "The substance of

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<sup>1</sup> *Pristiophorus* sp.

the island itself is composed, in its lower strata, of a shelly limestone, sometimes white, sometimes reddish, deposited in horizontal beds, whose thickness varies from 2 to 3 decimetres (7 to 11 inches). The shells encrusted in this rock-mass are almost all univalves; they belong chiefly to the genus *Natica* of M. de Lamarck and agree closely with the species of *Natica* which are found living at the foot of these rocks. Doubtless they have been petrified for many centuries, for, besides the difficulty of extracting them whole from the matrix owing to their intimate adhesion with it, they may frequently be found more than 50 metres (150 feet) above the present sea-level." The islands Dorré and Dirk-Hartighs are similar in structure to Bernier Island, and the remarks which I shall make on the vegetable and animal products of the latter are applicable to the two others also."

"The human species does not exist on these lands, and we found no positive trace of his presence or of his visits."

"A single species of Mammal occurs, namely the Banded Kangaroo<sup>1</sup> (*Kangurus fasciatus*, n.sp.), the smallest and most elegant species of this extraordinary genus of New Holland animals, which is characterised chiefly by the conical form of its body, by the disproportion of its feet, by the pouch in which the young are carried and nourished, etc. The present species is distinguished at first sight from all those known at present by 12 or 15 transverse bands on the back, narrow, of a light brown tint, less regular and less decided on the top of the shoulders where they begin to appear, but becoming much more distinct and browner as they descend towards the tail, at the base of which they terminate. These stripes disappear on the sides and cannot be traced on the ventral surface; the face and the feet are light yellow, whilst the abdomen is pale grey and sometimes almost white; the rest of the fur is grey varying in darkness in different individuals. The ears in this species are proportionately shorter than in any other of the genus; the same is true of the tail, which is also much more feeble, and which, being without hair, closely resembles that of a very large rat. The other characters, the conoidal form of the body, the disproportion between the fore and hind limbs, the distribution of the toes, nails, etc., are the same as in all the other kangaroos. But all these details, which will be given in the zoological part of our work, do not belong to this account; it will suffice to have indicated the principal characters of the pretty little animal with which we are concerned, and M. Lesueur's picture will sufficiently supply those particulars which I must here pass by in silence.

The Banded Kangaroo peoples the three islands of Bernier, Dorre, and Dirk Hartigs, but we did not find it on any part of the continent or on any of the other islands which we afterwards surveyed. We shall see in the sequel the same phenomenon for all

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<sup>1</sup> *Lagostrophus fasciatus*, Peron.

the species of kangaroos, namely, that each is limited by nature to certain islands or certain portions of land, whilst no individuals extend beyond the particular limits of their species.

Deprived of all means of attack or defence, the present species of kangaroo, like all feeble folk, and particularly like the hares of our clime, are extremely wary and timid. The slightest noise alarms them; the whistling of the wind is often sufficient to put them to flight. Consequently, in spite of their great number on Bernier I., hunting them was at first very difficult and precarious. In the impenetrable scrub these animals could endure with impunity the attacks and activity of our hunters. When forced to leave one of these retreats, they left it by some unforeseen route, speedily made for some other neighbouring patch, where it was impossible to conceive how they entered and disappeared so readily in the impenetrable thicket; but we soon learnt that in each patch of scrub they had numerous little covered runs, which, from different points of the compass, converged to the centre, and which they could use as different outlets, according to the point from which they were menaced. From that time their ruin was assured; our hunters joined forces, and whilst some of them beat the bushes with long sticks, others stood at the outlets of the little runs, and the animals, deceived by their experience, did not fail to fall under the almost inevitable blow. The flesh of this animal seemed to us, as to Dampier, very similar to that of the rabbit, but more tasty than that of the latter, which is perhaps due to the special nature of the plants on which it feeds almost all of which are aromatic. It is easily the best kangaroo flesh that we obtained, and on this account, the acquisition of this species would be a benefit to Europe.

At the time when we were in this locality all the adult females carried in their pouch a fairly large young one, which they endeavoured to save with a truly admirable courage; when wounded they fled carrying their young one in the pouch, and never abandoned it unless when too worn out by fatigue or too enfeebled by loss of blood they could not support it any longer. Then they stopped, resting on their hind legs and with their fore-feet helped it to leap out of the maternal sack, and endeavoured to show it a place of retreat in which it might hope to save itself; they then continued their flight as quickly as their strength would allow; but if the hunter's pursuit ceased, or only lessened, they were observed to return to the bush which protected their offspring; they called it with a kind of grunting which is peculiar to them; caressed it affectionately as if to dissipate its alarm, made it once more enter the pouch, and sought with this precious burden, some new retreat where the hunter could not discover or attack them. The same proofs of intelligence and affection were exhibited in a still more touching manner by these poor mothers when they felt themselves mortally wounded, all their care was for the safety of their offspring; far

from endeavouring to save themselves, they remained under the blows of the hunter, and their last efforts were devoted to the preservation of their little ones. . . . A generous devotion of which the history of animals offers so many examples, and which we are often forced to envy them!

During our stay on Bernier Isle, we captured several of these young kangaroos; but the majority, doubtless too feeble, did not long survive their captivity. Only one endured and thrived; this animal ate bread with pleasure, and especially appreciated water sweetened with sugar which was given it. The last taste seems extremely curious, since, on the barren island inhabited by these animals, every species of fresh water is completely lacking. This young kangaroo was accidentally killed at Timor; we did not regret its loss so much, since as we had only one individual we could not hope to naturalise it in Europe; but this first attempt conclusively proves that the species will accustom itself to captivity; and I repeat that it would be a great acquisition to our farm yards.

If we except certain useless or disagreeable kinds of which we shall not stop to speak, all animals are rare on the sterile soil with which we are dealing; the class of birds, for example, is only represented by melancholy cormorants, by several species of noddies, petrels, gulls, sea-eagles and oyster-catchers, which, far from man and his works, multiply on these arid rocks. The division of land-birds is only represented by fly-catchers and shrikes; we found, however, a beautiful species of tit<sup>1</sup> with a blue breast, which deserves more particular mention.

The Reptiles comprise only a species of skink<sup>2</sup> (*Scincus Tropisurus*, n. sp.), one of the largest of this genus, whose very short broad tail gives it the appearance, at first sight, of having two heads; a beautiful species of Tupinambis (*T. Endrachtensis*, n. sp.) from 12 to 16 decimetres long (4-5ft.), a Gecko (*Gecko Dorreensis*, n. sp.) from 10-13 cms. (4-5 inches). An account of these species, all three new to science, will be given in the zoological account of New Holland, with all the details which ought to be presented.

No place in the world perhaps produces so many fish as the great Sharks Bay; but this abundance of fish is not found on the coasts of Bernier Island. It is in the depths of the neighbouring harbours that these animals seek the calm and food which they require; we shall return to them at another time; it is sufficient to observe that our fishing yielded very few, and that our collections of this group were increased by scarcely ten new species.

In the midst of the tumbled rocks of Bernier Island live different species of Octopus, some of which reach a very large size; I saw several which were not less than 9 or even 13 decimetres (3 or 4 feet) long when their arms were extended.

<sup>1</sup> *Malurus lamberti*, Vig. and Horsf.

<sup>2</sup> *Trachysaurus rugosus*, Gray. (Stump-tailed Lizard).

Amongst the true shellfish these localities were richer; but if we except mussels and oysters which assemble, so to speak, amongst these rocks and waves in swarms, all the shells were univalves. In the bottom of the bay numerous magnificent bivalves live amongst the mud and sand. We will go on a future date to capture them in their peaceful habitations; but, not to anticipate the natural order of events, we will here indicate rapidly some of the more remarkable shells which we collected on Bernier Isle.

Of all the species of mussel known up to the present, one which I discovered there is undoubtedly the most beautiful and splendid; deprived of its sea-coating, it reflected all the most vivid colours of the prism and of precious stones; it is radiant, if I may thus express it. I have described it under the name of *Mytilus effulgens*.

On other grounds, the oyster of this coast (*Ostrea scyphophilla*, n. sp.) deserves particular attention: its lower valve is a kind of elongated cone 16 to 19 cms. long (6-7 inches), more or less regular. Fixed on the rock by its point and by one of its sides, it is covered by the second valve, which closely resembles the same piece in our common oysters, and which forms an operculum for the kind of cornet which I have just described. The animal does not occupy the whole depth of this curious shell; it lives in the summit of the cone, all whose lower portion is occupied by a large number of small transverse partitions like watch glasses, which reach to the extremity of the point by which the shell is attached. Their concave face is turned upwards, leaving between them free spaces, which are filled with an aeriform fluid, whose nature it would have been interesting to determine. However curious this oyster may be, its animal nevertheless was extremely delicate, and all opinions agreed in its favour.

Amongst the univalve shells peculiar to this part of the land of Endracht, I must mention a beautiful species of Trochus or Top-shell (*Trochus smaragdinus*, n. sp.) of the most vivid and intense green colour; a species of Limpet which, from its proportions, I named *Patella gigantea*; a magnificent Volute<sup>1</sup> (*Voluta nivosa*, n. sp.) sprinkled with little white spots like so many snow-flakes, and above all a cone (*Conus dorreensis*, n. sp.) about 40 mm. (1½ inches) long, very light orange in colour, and distinguished by a band 6 or 7 mms. (3 lines) broad, which is developed on each whirl of the spire, and which in the quite fresh shell is the most brilliant (blue) lapis colour. Two species of land shells extremely numerous, but all dead, occupied great stretches of the interior of the island, one was a small species of *Helix*, the other belonged to the genus *Bulimus* of M. de Lamarck.

The Crustacean family does not embrace a large number of species on these coasts; but there are two of the genus *Portunus* of M. Latreille (*P. pleuracanthus* and *P. euchromus*, n. sp.), which

<sup>1</sup> *Scaphella nivosa*, Lamk.

cover the rocks with their greedy multitudes. Some of these crabs are not much less than 10 or 13 cms. (4-5 inches) in breadth, and their flesh was excellent. They might afford, in case of need, a diet inexhaustible as well as healthful.

Insects are in general not numerous on this island, if we except the ants, which alone number five or six different species, and whose innumerable legions occur in every situation. After the ants come the Blattas or Cockroaches, of which one apterous species attained very large dimensions. Grasshopper, crickets, etc., furnished us with several curious-species. I must mention, in this connection, that the family of *Orthoptera*, which generally prefer arid and dry places, presents a large number of species in the Continent of New Holland, and each of them appears to be excessively numerous there. More than once we shall have occasion to note interesting connections between the nature of the soil and its various products.

Among the tumbled rocks which I have described live several species of sea-urchins, which it is sometimes very difficult to remove from the calcareous rocks in which they appear to be incrustated. In the same places live several species of Starfish, of the genus *Ophiura*; one of them (*Ophiura telactes*, n. sp.) is distinguished by its long arms, 21-27cms. (8-10ins.), jointed, fragile, and quite bristling with little spines. Withdrawn into the fissures of the rocks, this animal extends its long arms outside, and uses them with much skill to seize its prey and withdraw it into the interior of its little cavern. A second species of *Ophiura* (*O. phosphorea*, n. sp.) shines during the night like a beautiful star, by the aid of five glands or tubercles placed on its disc.

In the class of solid Zoophytes, besides some species of Millepore, a branched Madrepora is found, from 16-19cms. high (6-7ins.), whose extremity is marked, in the fresh state, by an extremely bright and pure rose colour.

From all the observations which I have just narrated on Bernier Isle and the waters which surround it, we conclude that the terrestrial animals are very few in species and all save the kangaroo are useless or harmful; whilst the sea on the other hand is remarkably rich, and from the whale to the microscopic polyp all the classes of the animal kingdom are represented there by numerous and interesting families; and when, in another part of this account, we shall have described the various productions of the great gulf at whose entrance we have now arrived, it will be seen, beyond doubt, that few seas have been more generously dowered than that which bathes these coasts."

As the "Naturaliste" did not appear, they decided to proceed further into the Bay, which they did on June 30th. "During the whole day we made little progress, navigating ceaselessly amidst great shoals of fish, of which we caught a great abundance, although

under sail; all the species were new, and belonged to the genera Labrus, Balistes, Cottus, Ostracion, Chaetodon, etc. During the whole evening of the same day, we perceived an enormous quantity of whales, of which several came very near the ship. We also saw several sea-snakes from  $1\frac{1}{2}$  to 2 metres (five or six feet) long." They anchored in Dampier's Bay, at the northern end of Freycinet peninsula, but the same evening a sudden storm forced them to run back to their old anchorage off Bernier Island. After vainly waiting here for the "Naturaliste" till 12th July, they continued their journey northwards. After rounding the North-West Cape and passing Hermite Island, "from the 23rd to the 25th we had feeble winds, interspersed with flat calms. . . . Besides a prodigious number of Medusae, Salpae and Porpitae, etc., we were surrounded by fishes of various genera, particularly Balistes, Chaetodon, Clupea, etc., which must be placed at the head of the equatorial fishes. Every moment we perceived round the vessel very large sharks, and on all sides whales and turtles presented themselves in great numbers. We recognised also two new species of sea-snakes, of which one 25-32 dms. long (8-10ft.), was green spotted with red and brown; the other only 9-13dms. (3-4 feet), of a dull green colour, was distinguished by large yellow and black splashes spread over the back."

On the 17th a party landed on Depuch Island. "They saw only one quadruped, which from a distance, appeared to be a dog; a conjecture which has the more probability since this species occurs on every point of the neighbouring continent. One of our sailors also thought he had seen a small kangaroo. Birds are reduced to some species of flycatchers and shore-birds. They also brought back a grey snake, 16 dms. (5ft.) long, of the genus Boa. Insects there comprise numerous species of ants, grasshoppers and crickets, and especially a fly which, by its prodigious numbers, much fatigued our men. Amongst the shells we must mention a charming species of *Pyrula* (*P. eospila*, n. sp.) elegantly ornamented with little rosy spots." After passing Bedout Island, "on the first of August, we experienced a violent storm, during which I had occasion to observe some medusae of a prodigious size; most of them were no less than 6.5 dms. (2ft.) in diameter, and weighed more than 25 or 30 kilogrammes (50 to 60lbs.). Several species of the same genus yielded us valuable observations for an account of the phosphorescence of the sea."

On the 5th they discovered the Laccpede Islands, and in front of them a reef "which we named Whale Shoals, on account of the great number of animals of this genus which we encountered there. All through the day we also saw large troops of molluscs, and many fishes and sea-snakes. Our collections were increased by many species of each of these classes of animals."

The 9th and 10th they were among islands which they named Champagny Archipelago. "All this part of the sea is very full of



fish, and our collections were increased by several species of Balistes, Chaetodon, Lophius, pelagic Crustaceans and soft Zoophytes."

On the 15th, "the day was marked by an important discovery, that of a new genus of fish (*Balistapodus wittensis*, n. sp.), near to Balistes, but differing from it by the complete absence of a ventral fin: this last character makes of it the first type of a new order in the Ichthyological Method of my illustrious master M. de Lacépède . . . . . He dared to fix in his tables the place that each of the unknown groups would occupy there some day . . . . . His great work on fishes was not yet finished, and already on far off shores his daring conceptions were realised."

On the 18th of August, as their stock of water was almost exhausted and many of the crew were suffering from scurvy, they left the Australian coast for Timor; where on September 21st they were joined by the "Naturaliste."

The proceedings of the "Naturaliste" in the period during which she was separated from her consort are related by M. Freyeinet. After the cessation of the storm in Geographe Bay she made her way to Rottneest Island, which she reached on June 14th. Whilst waiting here for the "Géographe," different parties of her crew explored the islands and the Swan River.

Round the salt lakes in the interior of Rottneest "a prodigious quantity of bivalve shells of a single species formed a shore of about 5 metres (15 feet) in breadth." On the island "we killed . . . . several seals, whose flesh tasted excellent."

At the entrance to the Swan River "a prodigious multitude of pelicans had fixed their abode: we could only secure one. The shore was covered by a very great quantity of white, gelatinous, and transparent molluscs, washed up by the sea, which are doubtless the food-supply of the birds which frequent the place." On the banks "the *Eucalyptus resinifera* occurs abundantly; and great flocks of land birds, especially elegant parrots, flying among the trees, enlivened, by their presence, these unknown, wild, and desolate regions." The calcareous rocks at the mouth of the river "exhibit evident traces of the former presence of the sea; the rock is almost exclusively composed of incrustations of shells, of roots, and even of trunks of trees petrified; a phenomenon which recurs in different parts of New Holland."

In what is now called Perth Water "we met with new flocks of pelicans, which flew round us; we killed two of them." After passing the Heirisson Isles (the present Causeway) "for the first time, we perceived some black swans; they were swimming majestically on the water: we killed several; they had entirely black plumage, except the quills, which were white, the beak was red, and the feet black. We observed that, shortly after death, their beak lost its beautiful red colour, and became black."

In descending the river their boat was stranded in the shallows among the Heirisson Isles; they were about to land for the night,

“when suddenly a terrible roaring froze us with terror: it was like the bellowing of an ox, but much louder, and appeared to come from the neighbouring bushes. At this fearful cry we lost all desire to reach the land, and, although shivering with cold, we preferred to pass the night on the water, without supper and without being able to sleep, on account of the rain and the cold.”

South of Rottneest they discovered two other islands, Ile Berthollet, now called Carnac, and Ile Buache, now called Garden Island. “The latter was covered with a great number of seals, which kept a little way from the shore, and seemed inclined to dispute the passage with our sailors. This audacity cost them dear: a great slaughter occurred.” Giraud Reef, near Carnac Island, “serves more particularly as refuge for a great number of sea-birds.”

On Rottneest Island, the naturalist Bailly, found “two species of small shells; one a bivalve, the other a univalve, fairly similar to a *Melania* and red in colour” on the shores of the salt lakes. “The shores of most of these lakes were, quite literally, covered with these shells: they are the only living beings which we discovered there.” The rock composing the hills is entirely calcareous, “full of shells very well preserved, which are arranged as if in families, in one place *Venus*, in another “*Vis*,” etc.

“We observed,” on Rottneest, “a small species of kangaroo, about 65 cms. (2 feet) high, which is very numerous there. We also met with a second species of quadruped of the size of a very large rat, which the old Dutch navigators actually mistook for a rat, but according to the observations of our naturalist, M. Péron, they belong to a new and very remarkable genus, whose description will be found in the zoological portion of the works of this estimable and indefatigable naturalist. Seals are present in large numbers on various sandy beaches on the coast: they sometimes penetrate for considerable distances into the interior of the forests. We saw some very large ones: they were mostly grey; some were reddish, and others were black. These last were the smallest and, perhaps, also the youngest; for we saw a female of an ashy grey colour suckling one of its young, which was itself black. The flesh of these animals, when it is fresh, is very good to eat; we often fried it and did not observe the least disagreeable taste or smell. The fur of most of these animals is fine and thick, and on this account, might be of considerable value: it would be easy to obtain a rich cargo of it.

Snakes are fairly common on Rottneest Island; we found several not less than 10-13dms. (4-5ft.) in length, and with a thickness of 40-50cms. (1½-2ins.); their colour was that of dull steel. Also on Rottneest Island a singular species of lizard was obtained, in which my friend Péron found a combination of digits hitherto unknown in the lizard family. This kind has only two on the fore-foot and three on the hind-feet.”

"Fishing yielded us an abundance of excellent fish; there were, however, some days on which we could not catch a single one; these days seemed to me to correspond with the days of the greatest calm of wind and waves. Perhaps at these times the fish moved further into the open, and only returned to our neighbourhood when the sea, being too rough, they found it necessary to seek in shallower water a region where the waves were smaller.

What struck us most concerning the fish was the multitude of sharks; they never left the ship for a moment, and the majority of them were truly enormous. We captured one whose muzzle was much more pointed than that of the rest; its length was 42dms. (13ft.), its circumference 32dms. (10ft.), and its total weight about 636 kilos (1,300lbs.). We saw some whose dimensions were twice as big as this. It may well be doubted whether any other seas contain more powerful and formidable monsters of this genus. We also frequently observed sea-snakes round the ship, principally when the sea was calm."

On Garden Island "I observed partridges and crows smaller than those of Europe, but of a delicious taste; seals are much more numerous there than on Rottneest."

Leaving this locality the "Naturaliste" continued northwards up the coast, passing the Abrolhos, and anchored in Sharks Bay on July 16th. On Cape Inscription at the north end of Dirk Hartog Island they found a plate with two Dutch inscriptions, that of Dirk Hartog in 1616 and that of de Vlaming in 1697. On the east coast of Dirk Hartog Island, a small bay and islet were named Bay and Islet of Tetrodons, "because of the great number of fish of this genus which we found there, and of which our sailors took an abundant haul. Here whales occur in such great numbers that I was often obliged to alter my course so as not to be capsized by these enormous cetaceans. I saw also some turtles, and many small sharks or dog-fish." Close to the southern point of the island "I observed several holes as large as a man, and which seemed to constitute so many burrows; it would be difficult to guess by what animal they were excavated, the largest species of quadruped which we observed on the island being scarcely as large as a rabbit."

"Round several extinct fires," presumably on the mainland, "we saw many remains of shells and of fish, but no quadruped bones." "We discovered a great many pearl oysters; our sailors collected a number, and found some pearls in them, of which the largest was only half a line in diameter."

"On a little, sterile, solitary islet, on which we passed the night, we found a prodigious number of different seabirds, which as soon as we landed, flew round us screaming loudly; they remained a long time sailing overhead, all the time making a great noise. The sight which this cloud of birds afforded was very curious; their whiteness allowed us to distinguish them against the sky, in spite of the dark-

ness of the night. We killed several of them, and collected a large number of their eggs, but neither appeared to us good; the eggs especially, although they were fresh, were hardly edible." On the Island of Three Bays, discovered later, "one can obtain oysters and fish."

[All these last observations were made in exploring Freycinet Harbour, between Dirk Hartog Island and Péron Peninsula.]

Hamelin Bay, on the east side of Péron Peninsula, was also explored. Near Faure Island "vast sandbanks were discovered, which, at this period of the year were covered with turtles . . . , our companions obtained 15 turtles in less than three hours, of which some weighed 122 to 147 kilos. (250-300lbs.)

"The animal productions of the sea," in the southern part of Shark's Bay, "are the same" as those described by M. Péron in the neighbourhood of Bernier Isle; "those of the land only appear to differ in the species of kangaroo which, larger on the continent than on the islands, is also rarer there; finally, the continent alone possesses dogs; and the human species is also peculiar to it."

"From the commercial point of view, the prodigious number of whales which we saw there seems to prove that speculations having for object the fishery of this animal would be successful; and the employment of water distillers would furnish sufficient for the needs of the fishermen. Fish and turtles would offer them an abundant and healthy nourishment; and possibly pearls, if more systematically captured, would pay for the labour of obtaining them."

On the 4th of September, the "Naturaliste" left Sharks Bay for Timor, where she arrived, as previously mentioned on the 21st.

On the 13th of November, having lost a number of their crew by scurvy during their stay at Timor, the two boats sailed again for Australia, and rounding the Lecuwin early in January reached Van Diemen's Land on the 13th. On the voyage Péron devoted his attention principally to pelagic animals. Deaths continued to occur on both ships from scurvy. "On the 20th of November, we encountered on the surface of the sea a great quantity of those Physalias, whose interesting habits I have already described (in the account of the journey from the Canaries to Mauritius). The species here referred to appears to me different from that of the Atlantic Ocean: I described it under the name of *Physalia australis*, and I made, on the organisation of these peculiar animals, a great number of researches, of which the details will be presented in the zoological part of our travels."

"On the 24th we saw for the first time the Storm-birds (*Procel-laria pelagica*, Lin.): we were in the 14th degree of South Latitude. On the 7th of December, in 17°, and the 1st of January in 34°, we perceived others; which is very unusual in this latitude. "On the 25th November, we captured a shark 32dms. (10ft.) long, which furnished us a new example of the prodigious irritability of these fish. Actu-

ally, more than ten minutes after its head had been cut off and its heart and all the viscera had been removed, we wished to draw it to the bow of the ship to wash it at the pump. The animal, which was held by the tail, made such violent efforts and heaved its body with so much strength and quickness, that several persons were knocked over by it."

"On the 27th, we met with numerous shoals of flying-fish; we saw them again on the 30th, December 1st and 2nd, in latitudes from 14° to 19°.

On December 2, in 15°, we observed the first Tropic Bird (*Phaëton aethereus*, Lin.), the most beautiful of the equatorial oceanic birds; on the 22nd we saw them again, and on this date we had just passed the tropic of Capricorn."

On December 11 we were in 21° S. Lat. and 101° E. Long. from Paris: we saw a Cape Pigeon<sup>1</sup> (*Procellaria capensis*), the most elegant of the Antarctic oceanic birds, whose description occurs so often in the accounts of ancient and modern voyagers. On the 13th we saw them again, and the same day we observed Phaëtons. so that we saw together at the same place two animals, of which one, exclusively inhabiting the Antarctic seas, is at home amidst cold, fog, and storms, whilst the other, attached, as Buffon says, to the highway of the sun, loves the calm of the Tropics and their high temperature." "We observed Cape Pigeons in great numbers the whole length of Leeuwin land, and even in Geographe Bay, in 33°."

"On the 25th we saw Grey Petrels (*Procellaria grisea*, Lin.): we met with them again on the 29th, 30th, and 31st of the same month, in latitude 32°-33° S."

"On December 29th, the sea appeared to be covered with *Ianthina*, the most agreeable of the pelagic shelled Mollusca; this mollusc, by means of a cluster of little vesicles filled with air, floats freely on the surface of the water, as we have already observed. On this brilliant shell, I discovered a new species of Crustacean, of an ultramarine blue colour like it. I recognised it as a *Pinnotheres* and described it under the name of *Pinnotheres Ianthinae*. This discovery is specially interesting, since these animals never seem to have been discovered parasitic on univalve shells before."

"On January 4th, 1802, in the midst of the waves, we saw two monstrous whales, which passed very near the ship; it was, however, impossible for me to determine their genus, because they only just ascended to the surface of the waves and then disappeared, leaving a vast foam behind them."

"On the 5th we were already in 37° of Latitude and in 117° of Longitude East (of Paris). Here the great Equinoctial Petrel (*Procellaria equinoxialis*, Lin.) disappeared; it had appeared to us for the first time in latitude 21° on the 11th of December; and from that date onwards, it had never ceased to be on view round our vessel.

<sup>1</sup> *Daption capense*, Linn.

Thus we saw this beautiful Petrel for an extent of more than 19° on the limits of the southern equinoctial regions.”

“The 7th of January we were in Lat. 39° and E. Long. 120°. We had the first sight of the species of Albatross described by Forster under the name of Chocolate-coloured Albatross (*Diomedea spadicea*). We had, on the 4th, in 35°, met with the Common Albatross (*Diomedea exulans*, Lin.), the largest of the Antarctic oceanic birds; and we had observed the two varieties of it white and brown, which it would be better to consider as two distinct species, as I shall endeavour to prove elsewhere. Some individuals had a spread of 32dms. (10ft.) or even more. The Chocolate-coloured Albatross appeared to me, as to Forster, smaller than exulans.

“During the 9th, several interesting animals appeared. The first were the great Brown Gulls (*Larus cataractes*, Lin.). These Gulls are, next to the Albatrosses, the most powerful oceanic birds of the Antarctic extremity of the world. Other flocks of birds, which appeared during the 9th, all belong to the genus of Sea-swallows (*Sterna*). I distinguished three species of them: the first appeared to me to be *Sterna obscura*, Lin.; the second was new: I described it under the name of *Sterna melanosoma*, on account of the black colour of its body; the third was equally unknown to naturalists, and owing to its affinity with *Sterna caspia*, Lin., it received the name of *Sterna caspioides*. This same day we perceived in the waves a short distance from the ship, an enormous species of Sepia, resembling the genus Calmar (*Loligo*, Lamarck) of the size of a cask; it rolled noisily in the midst of the waves, and its long arms extended on their surface, writhed like so many enormous reptiles. Each of its arms was not less than 19 to 22dms. long (6 or 7ft.) with a diameter of 18 to 21ems. (7 or 8ins.)”

Whilst the French ships were passing down the coast the celebrated explorer, Mathew Flinders, was devoting his attention to the southern coast of the State, which he explored from King George’s Sound to the head of the Bight.

As regards the fauna, however, he added little to what had already been recorded by Vancouver and Labillardière.

At King George’s Sound he observed seals, oysters, parroquets, and black swans. On January 3, 1802, he “took the opportunity of standing backward and forward in the Sound with the dredge and trawl overboard; and a variety of small fish were brought up. These were of little use as food, but with the shells, sea weeds, and corals they furnished amusement and occupation to the naturalist and draughtsman, and a pretty kind of hippocampus, which was not scarce, was generally admired.”

He states that “amongst the animal productions of the district, the kangaroo and cassowary hold the first ranks. The kangaroo appeared to be numerous and of more than one species, but none

were caught. Three of them seen by me bore a resemblance to the large kind which inhabits the forests of Port Jackson; and the cassowary showed nothing distinguishable at a distance from the same animal at that place; both were shy, as were the ducks, swans, and all the birds."

"Near Point Possession were found two nests of extraordinary magnitude. They were built upon the ground, from which they rose about two feet, and were of vast circumference and great interior capacity, the branches of trees and other matter, of which each nest was composed, being enough to fill a small cart. If the magnitude of the constructor be proportionate to the size of the nest, Terra Australis must be inhabited by a species of bird little inferior to the condor of the Andes.

"Amongst the reptiles was a variety of lizards; one of which of the larger size<sup>1</sup> was met with by Dampier on the west coast, and is described by him. The animal is certainly of a singular form; but it is scarcely necessary to say, that the merit of Dampier's description does not consist in being strictly accurate.

"The fish caught with hook and line were principally small mullet, and an excellent kind of schnapper, nearly the same as that called wollamai by the natives of Port Jackson; but these were larger, weighing sometimes as much as twenty pounds."

At Lucky Bay (near Esperance) "upon a rock on the side of the hill I found a large nest, very similar to those seen in King George's Sound. There were in it several masses resembling those which contain the hair and bones of mice, and are disgorged by the owls in England after the flesh is digested. These masses were larger, and consisted of the hair of seals and of land animals, of the scaly feathers of penguins, and the bones of birds and small quadrupeds. Possibly the constructor of the nest might be an enormous owl; and, if so, the cause of the bird being never seen, whilst the nests were not scarce, would be from its not going out until dark; but from the very open and exposed situations in which the nests were found, I should rather judge it to be of the eagle kind, and that its powers are such as to render it heedless of any attempts from the natives upon its young."

"Geese and ducks were found here, and, not being very shy, some of them were killed by the shore parties. The goose<sup>2</sup> was also found upon the islands; and is the same bird as I found frequenting Furneaux Islands in Bass Strait, and resembling the bernacle goose.

"Some fish were caught alongside the ship, but our success was much impeded by three monstrous sharks, in whose presence no other fish dared to appear. After some attempts we succeeded in taking one of them; but to get it on board required as much preparation as

<sup>1</sup> *Trachysaurus rugosus*, Gray. (Stump-tailed Lizard).

<sup>2</sup> *Cereopsis novaehollandiae*, Latham. (Capc Barren Goose.)

for hoisting the launch. The length of it, however, was no more than twelve feet three inches, but the circumference of the body was eight feet. Amongst the vast quantity of substances contained in the stomach was a tolerably large seal, bitten in two, and swallowed with half of the spear sticking in it with which it had probably been killed by the natives. The stench of this ravenous monster was great, even before it was dead; and when the stomach was opened it became intolerable."

"All the islands of the Archipelago of the Recherche seem to be more or less frequented by seals,<sup>1</sup> but I think not in sufficient numbers to make a speculation from Europe advisable, the seals being mostly of the hair kind, and the fur of such others as were seen was red and coarse."

On Moudrain Island "a few small kangaroo<sup>2</sup> were captured of a species different from any I had before seen." "Some of the little blue penguins,<sup>3</sup> like those of Bass Strait, harboured under the bushes on Goose Island; and amongst the grass and upon the shore were a number of the bernacle geese, of which we killed nine, mostly with sticks."

"A small species of kangaroo seemed to be numerous on Middle Island, in parts thickly covered with brushwood and small trees, though none were caught."

At Point Malcolm, "the people of the watch occupied themselves successfully in catching dog fish"; on the following afternoon "we passed a number of pale red medusas, such as I had usually seen on the East Coast at the entrances of rivers, and which on being touched produce a sensation like the stinging of a nettle."

After exploring Tasmania and the islands of Bass Strait, visiting Sydney, and spending a lengthy period on the coasts of Napoleon Land, now South Australia, the *Geographe*, and a small ship the "*Casuarina*," which had been commissioned in Sydney, returned to Western Australia, and reached King George's Sound on February 11, 1803.

"On the peninsula which separates Princess Royal Harbour from King George's Sound," says Peron, "there are several fresh-water lakes which are very deep, and contain a species of cray-fish<sup>4</sup> peculiar to this coast."

"The Dog and the Kangaroo are the only terrestrial mammals whose existence we could discover. The remains of a whale, accumulated towards the end of Princess Royal Harbour, evidently showed that an enormous cetacean had recently perished in that place. Some seals were seen in the sea at intervals, but we could not catch any to determine their species; these animals chiefly inhabit a small

<sup>1</sup> *Zalophus lobatus*, Gray.

<sup>2</sup> *Macropus eugenii*, Desm. (*Dama* Wallaby).

<sup>3</sup> *Eudyptula minor*, Forster.

<sup>4</sup> *Cheraps* sp.



island near Bald Head; and on this account Vancouver called this island Seal Island. Land and sea birds were equally rare at King George's Sound, and were all so wary and wild that it was almost impossible to approach them; such wariness appeared to us to be the result of the continual hunting of the inhabitants. These birds belonged to the same species as those which have been previously mentioned in the course of this work. An exception to this statement is a teal<sup>1</sup> remarkable for a membranous appendage which it has under the beak, of which M. Lesueur managed, with much difficulty, to procure some individuals.

"Of all the places where we stayed in New Holland, King George's Sound is, after Sharks Bay, that which furnished us the greatest abundance of fish; the species were not very varied, but they were excessively numerous in individuals. Amongst others we caught a sort of Scomber, very similar to the Mackerels of Europe, but much smaller than the latter, which alone would have sufficed for the needs of a considerable fleet; other species belonged to the genera Sparus, Mugil, Scorpaena, Labrus, Ostracion, Squalus, Balistes, etc. A cartilaginous egg specially struck me owing to its extraordinary form; I shall give a figure and description of it elsewhere. The beautiful striped sea-horse is found on these coasts; we saw also Rays, Murænas, Esox, etc.; in a word, on account of the fish and the resources which it offers, King George's Sound appeared, at the time when we were there, to be one of the most precious localities which navigators can frequent in these regions; one could, if necessary, lay in abundant provisions there.

"Other less useful animals deserve however to be mentioned here. Of the order of Batrachians, I discovered a charming new species of the genus Hyla; it is the only Frog, except those of Port Jackson, which I saw in New Holland, and the absence of animals of this family evidently depends on the scarcity of fresh water which is a necessity to them. Lizards provided me with three species, two of which were Skinks; and in the 'anse de l'Aiguade,' I myself killed a snake 182 cms. (6ft.) long, which, in M. Lacepede's system, would form the type of a new genus, near to that of Boa; this terrible reptile is armed with venomous fangs.

"Insects were few in number, and did not present any feature of interest. Of Crustaceans, I collected fifteen species previously unknown, amongst which was a Crayfish which lives in the lakes and brooks; it is the only species of freshwater crustacean which I saw in the whole extent of New Holland, the reason for which is evident.

"True Molluscs, worms and soft zoophytes are here abundant and numerous in species; but in the double aspect of magnificence and of variety, the shells bear the palm before all the rest. In the short period of a few days I collected more than 160 species, of which the greater part were new to me. Especially one must men-

<sup>1</sup> Biziura lobata, Shaw. (Musk Duck).

tion elegant species of Trochus, enormous Turbos, brilliant Haliotids a Conus of a beautiful red colour, gigantic Barnacles, eight or ten species of Limpets, several Stomatias, agreeably tinted with most fresh and graceful colours, a new species of Janthina of the rarest beauty, and a Terebra 1520 cms. (5-7 ins.) long, which is very similar to a species of the same genus found fossil in the neighbourhood of Paris; we saw also pretty Pearl Oysters, excellent eating Oysters, beautiful and edible Mussels, various kinds of Murex, Serpulas, Bullas, Dentaliums, etc. . . . But in the midst of such riches it is impossible even to mention the most precious objects; I will content myself then by presenting here some remarks of a more general interest, which if not suggested to me were at least confirmed by the examination of the various animal productions of King George's Sound." . . . . .

"No one, I daresay, has collected more animals from the southern hemisphere than I have; I have observed and described them all on the spot; I have brought several thousand of them to Europe; they are deposited in the great museum of the Empire; . . . . . If one examines, I will not say the species of Doris, Aplysia, Salpa, Nereis, Amphinome, and the crowd of molluscs and worms highly differentiated which are successively offered to our observation; if one descends to the Holothurians, Actinians and Medusae, even if necessary let us descend to the formless sponges which everyone agrees to regard as the last term of degradation or rather of simplicity in animal organisation; in this so to speak frightful multitude of antarctic animals, it will be found that not one occurs in northern seas; and from this well considered examination, from this long series of rigorous comparisons, one will be forced to conclude, as I have done myself, that there is not a single species of well-known animal which is truly cosmopolitan or actually native to all parts of the world.

"Besides this, and it is on this account that the wonderful variety of nature occurs; however imperfect an animal may be, each one has received a distinct country; it is to certain localities that they are attached; it is there that they are to be found in most abundance, of the greatest size and beauty. In proportion as they progress further from this point, the individuals degenerate, and the species ends by extinction. Let us take as an example that enormous Ear-shell of which I have already frequently spoken under the name of *Haliotis gigantea*; it dwells at the extremity of the globe, amidst the shock of the polar waves; there it reaches a length of 15-20cms. (6-7ins.); there it forms precious banks on which man comes to seek an abundant and healthy food. . . . . Hardly are we at Maria Island—we have made, so to speak, only the crossing of d'Entrecasteaux channel—and already this great shell has lost its dimensions; at King Island it is smaller still, and rarer; its degradation becomes more and more evident as we proceed further to-

wards Kangaroo Island and the 'Josephine' Islands; in the miserable abortions of this species which live on the rocks of Nuyts Land, one can scarcely recognise the largest shell of Van Diemen's Land; and finally at King George's Sound one seeks for traces of it in vain.

"The same is the case with *Plusianella*, formerly so rare and so precious, and which we collected in such large numbers. Maria Island is their true country; there it would be possible to load vessels with them. . . . Like the *Haliotis gigantea* of the South Cape, they expire at King George's Sound, after having experienced, like it, a series of degradations almost insensible, it is true, but which nevertheless end by destroying the species.

"It would be easy for me to multiply examples; but what I have just said of the largest and most beautiful shell of this part of the Great Southern Ocean will suffice to prove that animals belonging to cold countries cannot advance with impunity into the midst of the torrid zones.

"On the other hand, animals of these latter climates do not appear any more suited to live in cold countries, and our own experience furnishes an excellent proof of this also. Of all the countries which I have seen none can compare with Timor for abundance and variety of shells; the richness of its coasts is really, in this genus, beyond all expression; more than twenty thousand shells, belonging to several hundred species, were obtained there by my labours. Yet! of this prodigious multitude of animals, there is not one which I could find, either in Van Diemen's Land, or in the southern part of New Holland; it is in Endracht Land, and consequently at the beginning of the equatorial region, that some of the Timor shells begin to appear.

"It is not only for species that this singular exclusion holds; one observes it also amongst the genera. Without speaking of those *Crassatellas*, 'Houlettes,' and especially *Trigonias*, which appear to be so rare in nature in the living state, it holds for genera of which numerous species seem to have been almost exclusively confined to such or such a part of the globe; thus for example, the equatorial countries contain a multitude of *Cones*, of *Olivas*, of *Cowries*, etc., which are hardly known on the colder coasts of either hemisphere. Thus, whilst Timor and all the neighbouring isles swarm with these brilliant shells, two or three small obscure species hardly dare to appear in the southern parts of New Holland. It is at the level of King George's Sound that the shells of these pompous genera are seen to reappear with some éclat; they succeed, so to speak, to *Plusianellas* and to *Haliotis*, and continue, whilst further embellishing it, the admirable geographical scale of the productions of nature. Seen from this point of view, science appears to me to offer a new career both useful and brilliant to follow, and of which the beautiful geographico-zoological divisions of M. de Lacepede, and the precious hydrographico-zoological work of M. de Fleurien, have gloriously marked the commencement.

"I have finished my account of the natural history of King George's Sound. From its position at the extremity of the S.W. coast of New Holland, it marks the line of demarcation which exists between the animals of the North and those of the South of this vast continent; on this last account it obviously deserved the greater length which I have devoted to its description."

In Oyster Harbour "excellent oysters, hardly covered by a few feet of water, grow on the banks of sand and clay; our sailors fished as many of them as they desired. Not far from the entrance of the sound is a little islet on which Vancouver sowed several useful seeds, and which, for this reason, he called Garden Island. Landing there, our companions found no trace of European plants; innumerable legions of large ants appeared to them to be the principal cause of the destruction of these useful seeds."

The ships left King George's Sound on 1st March. In Geographe Bay the Casuarina "encountered an innumerable quantity of dead whales, which, floating on the surface of the water, presented an appearance as strange as it was surprising." In the marshes near Port Leschenault "we saw everywhere many very wild teal, some pelicans, and other sea-birds." "Some bones of a large kangaroo, on which some of the flesh remained," were collected near a recent fire. They arrived at Sharks Bay on March 16. On Peron Peninsula "innumerable legions of little *Tabanus* pursued us mercilessly everywhere."

On the east coast the sand banks were covered with shells, "various troops of fish swam fearlessly round us: we distinguished among others brilliant *Labrus*, curious *Chætodons*, several species of *Balistes*, *Scomber*, *Raia*, *Tetrodon*, and several large sharks."

The chief object of this second visit to Sharks Bay was to obtain turtles, but "with much trouble, in eight days, they procured only 12 of these animals in the same place at which our companions of the 'Naturaliste' had encountered them in thousands. This rarity of turtles is as simple to explain as it was easy to foresee. It is in spring that these amphibia approach deserted sandy islands to deposit their eggs, which are hatched by the heat of the sun: they live on land as long as the education of their young family requires; after which they regain the high seas, where they habitually live. A small number of feeble or diseased individuals remain on shore, and it was from amongst these latter that we managed to procure a few.

"Thus the habitation of marine turtles, like that of seals, is essentially governed by the progress of the seasons; and the prudent navigator ought to take account of this circumstance: not to be misled in the researches or commercial speculations which he may wish to make on these animals. The same is true of whales, which had terrified us by their number on the occasion of our first sojourn in Sharks Bay and of which we did not see a single individual on our return to the same locality."

Faure Island, in the middle of Hamelin harbour, is surrounded by sand banks between which there are intervals where the water is 9 to 12 feet deep. "It is in these deeper places that the marine plants grow on which the turtles feed: these amphibians themselves live chiefly on the west side of the island. The eastern side is infested by sharks remarkable for their size and voracity. One of these monsters almost devoured Lefèvre, who had saved my life at the Josephine Islands. He was already knocked over: the terrible shark was about to swallow him, when three other sailors, running up at his shouts, managed to rescue him from the jaws of the animal. Furious at thus being deprived of its prey, the shark hurled itself several times at the sailor, succeeding in tearing off part of his clothing, and only retired when it had received five wounds.

Several times we have noticed interesting correspondences between the nature of the soil and that of the living beings which are natural to it: we have seen everywhere that the different tribes of terrestrial or marine animals correspond to such or such latitudes, to such or such climates, live exclusively in such or such temperatures, on such or such foods, and can only exist where all the physical circumstances indispensable to their needs exist. It is not alone to the naturalist that considerations of this kind may be useful: often they throw considerable light on geography, and consequences of the greatest interest from this point of view may often be deduced from them. Unfortunately we must add that this fascinating and philosophical portion of natural history has scarcely been touched: and the accounts of travellers, which ought to serve as its basis, usually contain inexactitudes or errors, instead of the precise facts and rigorous notions which are required by science. What remains to be said concerning Sharks Bay will furnish the proof of this latter assertion and of the importance of researches of this nature.

Amongst the numerous observations which Dampier made in Sharks Bay, one was most important to verify, since it contrasts strongly with everything that we saw in this locality. I refer to the hippopotamus head which the celebrated English navigator claimed to have found in the stomach of a shark: now it has been proved by naturalists,

- 1st, that the true hippopotamus (*Hippopotamus amphibius*, Lin.) belongs exclusively to Africa:
- 2nd, that this animal is confined to fresh water;
- 3rd, that it is only found in the largest lakes and principal rivers of Africa, such as the Nile, the Niger, the Senegal, the Gambia, the Congo, the Orange River, etc.:
- 4th, that it is even unusual to find them near the mouths of these rivers.

But, since it is completely proved that the existence of the hippopotamus is essentially connected with that of large sheets of fresh water, Dampier's observation would naturally lead to the belief that such occur in the neighbourhood of Sharks Bay. Such a consequence being supported by some other particulars given by the English captain, and especially by the complete ignorance in which he leaves us concerning all the details of this vast gulf, it is not surprising that several geographers have fixed on this point as the mouth of one of those great rivers which they consider must exist in New Holland. This last hypothesis having been completely destroyed by the excellent surveys of Messrs. Freycinet and Faure, it remains to discover what was the animal which could have deceived such a clever observer as Dampier, and all our researches had been in vain up to this time. A happy chance finally furnished us with the solution of the problem, and this last discovery was also the result of M. Ransonnet's explorations in Hamelin Harbour.

Quite near to the place where Lefèvre was almost devoured by a shark lay stretched on the shore an animal 20-22 dms. (6ft.-7ft.) long, half decomposed by putrefaction, which appeared to our sailors so different from the seals that these worthy men thought they would bring me at least some pieces of it; not being able to bring the entire head, on account of the horrible stench which it gave off, they pulled out seven teeth, which they presented to me. I readily recognised that these teeth had belonged to a herbivorous animal like the hippopotamus, but they differed essentially from those which characterise the latter genus. They belonged, in fact, to a dugong,<sup>1</sup> a little-known marine mammal, which appears to be confined to the Indian Ocean. "This animal," says Leguat, the ancient navigator who gives the most details about them, "attains a length of 20 feet . . . It feeds in flocks like sheep, in only 3 or 4 feet of water . . . We sometimes found three or four hundred together feeding on the grass at the bottom of the water . . . We never saw this animal on land. I doubt whether it could draw itself up onto it, and I do not believe it is amphibious" (Leguat, *Voy.*, Vol. I., pp. 94-96).

"Each of these prodigious fish," says Barchewitz, "was more than 6 aunes (23 feet) long; the male was a little larger than the female; their head resembled that of an ox . . . When we killed them, they were travelling (at some toises (fathoms) of depth), and were eating a green grass which grew on the coast" (Barchewitz, *Ost-Indian Reise-Beschreib.*, p. 381).

It is to this herbivorous character, which only the dugong in this region shares with the hippopotamus, that the mistake of Dampier must doubtless be attributed; the mistake was the more excusable since the celebrated traveller saw only a head half decomposed by digestion. With respect to the two longer teeth of which

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<sup>1</sup> Halicore dugong, Illig.

Dampier speaks, and which doubtless also contributed to his deception, they occur both in the hippopotamus and the dugong, with this essential difference, that the former animal has them in the lower jaw and the latter in the upper; but the silence of the English navigator on this point excludes all means of distinction and even all possibility of comparison.

Beyond this we ourselves saw no trace of the dugong in this locality; unless perhaps we might assign to this genus the monstrous animal which caused so much terror to our companions in the Swan River. The terrible roar, similar to the bellowing of a bull, but much louder, and which appeared to come from the reeds, must have belonged to one of the largest species of animals which the Indian Ocean nourishes in its waves. Now, of all those which we know, the dugong alone presents dimensions comparable with the "terrible noise" which we are discussing. Such a presumption is confirmed by all the details which we have already given concerning the Swan River, or rather the long arm of the sea which is known by that name.

Thus, thanks to the interest which simple sailors, who might well serve as an example to their officers, took in my labours, we find ourselves led to a solution as simple as it is precise on two problems important both in the zoölogic and the physical history of New Holland."

[Owing to the untimely death of Peron, the work was completed by L. Freycinet.]

The two ships left Sharks Bay on 23rd March and rounded the North-West Cape on the 27th. The sea in this neighbourhood was studded with reefs, "several of which appeared to us to be partially uncovered at low tide. It is to this last circumstance, doubtless, that we must attribute the extraordinary multiplicity of marine animals on this part of the coast of New Holland: innumerable legions of petrels, gulls, terns, noddies, cormorants, etc., sailed above us; thousands of fish of different kinds swarmed round our vessels, and long marine reptiles glided rapidly through the surface waters."

On the night of the 30th "several of our sailors occupied themselves in line-fishing, which procured us a magnificent species of *Amphinome*. This beautiful marine worm, which glows with the richest reflections of gold, purple, and red, is sometimes no less than 7 inches long: it perpetually took the bait of our fishermen, whose sport was spoiled by its voracity."

Two islands discovered on 2nd April were called Turtle Islets "on account of the great number of animals of this genus which we saw in their neighbourhood." (Lat. 19 deg. 50 min. 13 sec. S., Long. 116 deg. 23 min. 48 sec. E. (P.).

"All these banks and reefs, which made us despair of ascertaining the geography of the coast, were on the other hand very

favourable to our researches in natural history; and during these days of alarms we were enriched by a crowd of species of marine animals which were previously unknown to us. Sea-snakes especially astonished us by their prodigious number: we noticed some of every colour and of many sizes; some were as thick as an arm and not less than 5 or 6 feet long. But what more particularly attracted our attention was a kind of grey powder which covered the sea for a space of more than 20 leagues from east to west. This extraordinary phenomenon had been previously observed by Banks and Solander near New Guinea. These two illustrious travellers state that the English sailors called it sea-sawdust. There is certainly a rough resemblance between the two substances; but on examining this supposed sea-sawdust under the microscope we recognised in each of the atoms which compose it such a regular and constant form that we could not fail to regard it as so many little organic bodies. They were fairly similar to the glumes or balls of oats; their very small size, with the absence of any kind of sensible movement, led us to consider them as true eggs of some species of marine animal.

The prodigious multiplication which such a quantity of eggs supposes is not without parallel in nature: it will suffice to recall in this respect those "seas of blood" of which several celebrated navigators speak, which owe their colour to a single species of microscopic crustacean.

On 25th April they fell in with a fleet of Malay prows. From these they learnt "that all this coast was fringed with great sand banks which were partly dry at low water; that they were then covered by an enormous quantity of different animals, particularly by the Holothurians or Trepang of which the cargoes of the Malays are composed; that green turtles,<sup>1</sup> and even the tortoiseshell-turtle,<sup>2</sup> occur in very considerable numbers round these banks, and furnish to the fishermen an abundant and healthy food; that all these coasts were excessively plentiful in fish."

The name of *Holothuria* Banks was given to this region. "Those of our people who had been on Cassini Island brought back a fairly large number of shells which all belonged, with some differences in colour and size, to species which we had previously collected at Timor; on the other hand, there was not one of the species of the south of New Holland or of Van Diemen's Land. This curious result is equally applicable to all branches of the animal kingdom."

On the 30th they once more left the coast for Timor, from which they returned to take up the work where they had left it on 12th June.

An extensive sand bank "was named Medusa Bank on account of the great number of animals of this genus which our naturalists found in this neighbourhood."

<sup>1</sup> *Chelonia mydas*, Linn.

<sup>2</sup> *Chelonia imbricata*, Linn.



Owing to perpetual contrary winds very little further progress was made, and the expedition finally left Australian shores on 7th July.

The very large collections made by Peron and Lesueur on this expedition were taken to Paris, and a great part of the material was described by Lamarek in his "Animaux sans Vertébrés," by the authors of the *Nouveau Dictionnaire d'Histoire Naturelle*, and by other French naturalists of the period. Unfortunately none of these works are accessible in Western Australia.

In the year 1817 Captain Philip P. King, R.N., under directions from the Admiralty and the Colonial Office, was put in charge of the "Mermaid," a cutter of 84 tons, with directions to complete the survey of the coasts of Australia which had been begun by Flinders. In this small ship he had with him the famous botanist Allan Cunningham; two officers, Messrs. Bedwell and J. S. Roe, the latter afterwards Surveyor General of the Swan River Colony, 12 seamen, 2 boys, and a new South Wales aboriginal, Boongaree.

They left Port Jackson on 22nd December, and passing through Bass Strait and across the Bight, anchored off Middle Island in the Recherche Archipelago on 16th January, 1818. "No animals were observed, excepting some small quadrupeds, which were momentarily seen by Mr. Roe, and, from his description, were kangaroo-rats.<sup>1</sup> On Goose Island, the bird<sup>2</sup> from which it takes its name appeared to be abundant, but there was too much surf to permit our landing upon it."

On 20th January the "Mermaid" reached King George the Third's Sound, where she remained till 1st February. The first evening they "landed on Seal Island. Several seals were upon it, one of which we killed; and some penguins were also taken." "Iguanas, geese, penguins, gulls, and seals of the hairy species were the sole inhabitants of this rock."

On an adjacent hill on the mainland "an abundance of shells of the helix tribe<sup>3</sup> (*Helix bulimus*) was found."

"During our stay in Oyster Harbour," says King, "many parts of the neighbourhood were visited by us. The shoals of Frenchman's River (now called the Kalgan) were covered with large flights of water-fowl, among which curlews and teals were abundant. Oyster Harbour is plentifully stocked with fish, but we were not successful with the hook on account of the immense number of sharks that were constantly playing about the vessel.

"A few fish were taken with the seine, which we hauled on the eastern side of the small central island. Boongaree speared a great many fish with his fiz-gig; one that he struck with the boat-hook on

<sup>1</sup> *Macropus eugenii*, Desm. (Dama Wallaby.)

<sup>2</sup> *Cereopsis novaehollandiae*, Latham. (Cape Barren Goose.)

<sup>3</sup> *Bothryembrion kingii*, Gray.

the shoals at the entrance of the Eastern (Kalgan) River weighed twenty-two pounds and a-half, and was three feet and a-half long."

"Excepting the sea-fowl, which consisted of geese, wild ducks, teals, curlews, divers, sea-pies, gulls, and terns, very few birds were seen, and those chiefly of the parrot and cockatoo tribe; a species of the latter was noticed of a rich black plumage, and very like the black cockatoo of New South Wales. Kangaroos from their traces must be numerous, but only a very few were noticed; the only reptile that was found was a black snake, which Mr. Cunningham saw for a moment as it glided past him."

"A little without the east entrance of the harbour we saw one of those prodigious large nests which Captain Flinders observed near Point Possession; it was built on the summit of an almost inaccessible rock, exposed to the S.W. winds; it measured four feet in diameter at the top, and nearly seven feet at the base; it appeared to have been deserted for some time, as the branches and sea-weed, with which it was made, were strewed about the rock. Captain Flinders thought it probable that the inhabitant was an eagle; but on our subsequent visit to King George's Sound in 1821, we saw the same nest occupied by a hawk of moderate size."

On leaving King George's Sound the expedition proceeded round the Leeuwin and up the west coast but did not see land again till February 10, 1818, in the neighbourhood of the North-West Cape. "We were no sooner under the lea of the land," says King, "than the air, before of a pleasant and a moderate temperature, became so heated as to produce a scorching sensation; and to raise the mercury in the thermometer from 79deg. to 89deg. We were also assailed by an incredible number of flies and other insects, among which was a beautiful species of libellula. The sea swarmed with turtles, sea-snakes, and fish of various sorts; and the dolphin was eminently conspicuous for its speed, and the varied beauty of its colours."

From this date until March 6 the "Mermaid" was engaged in surveying the coast between the North-West Cape and Depuch Island, including Exmouth Gulf, the Dampier Archipelago, and Nielkol Bay.

The only evidences of mammals were the bones of kangaroos seen round the fire-places of the natives. "The impression of what appeared to have been an emu's foot was noticed upon the sand, there is reason, however, to think we may have been deceived; we never afterwards saw one of those birds on the north coast." Pelicans and curlews were very numerous, some shoals between Legendre and Gidley Islands were covered with immense flights of pelicans and other water-fowl. On Lewis Island was observed one of those immense nests that were seen at King George's Sound, the base of which measured seven feet in diameter.

The country was covered with immense ant-hills; one that Mr. Cunningham measured was eight feet high and nearly twenty-six in circumference; but on breaking it up he found it to be deserted by its constructors; an iguana which was hunted by that gentleman took refuge in one of these hills, which proved a safe asylum, for, although he broke a great part down, it escaped.

The most numerous and annoying of the inhabitants were the flies, from their constantly creeping into the eyes, nostrils, and mouth, particularly during meals.

In Exmouth Gulf the sea was abundantly stocked with fish and turtle, though it did not appear to be the season for the latter to lay their eggs. An immense shark was hooked, but it broke the hook and escaped; its length was about twelve feet, of an ashy-grey colour, spotted all over with darker marks; the belly was white, and the nose short; it was altogether different from any we had before seen. Curlew River appeared to abound in fish, but the only sort that was caught was what the sailors called cat-fish; they were of a nauseous taste.

In Exmouth Gulf the eastern shore was covered with dead shells, among which a buccinum of immense size was noticed. Near Curlew River the shore is lined by a barrier of sharp rocks covered with ostrea and nerita; but although these were the only living testaceous animals that were found, the beach was covered with a multitude of dead and imperfect shells of various species. The shores of a bay on Enderby Island were plentiful in shell-fish, particularly oysters; and *bêche-de-mer* were also abundant in the crevices of the rocks.

After leaving Depuch Island the "Mermaid" proceeded to survey Rowley's Shoals and then sailed eastward to Arnheim Land. After spending more than two months examining this part of the coast of the Northern Territory, she proceeded to Timor and thence returned to the North-West coast at Barrow Island. A few days were then spent sailing round the Montebello Islands. "Off these islands," says King, "we had much calm weather, during which we were surrounded by myriads of fish, of which sharks, and small whales, called by the whalers fin-backs, were the most conspicuous. The smaller kinds consisted of bonetas, barracoutas, porpoises, and flying fish. A voracious dolphin was harpooned, in the maw of which was a barracouta in a half-digested state, and in the throat a flying-fish, bitten in half, waiting its turn to be swallowed; for its tail had not disappeared out of the dolphin's mouth."

At this point they left the coast and proceeded by way of Bass Straits to Sydney which was reached on July 29, 1818.

Before Captain King returned to the west coast to continue his survey, the French ships "Uranie" and "Physicienne," under the command of Captain Freycinet, had visited Sharks Bay on their

voyage round the world. Unfortunately I have been unable to obtain Freycinet's account of this voyage, which contains a section on the zoology by Messrs. Quoy and Gaimard.

A second account of the same voyage is contained in the "Promenade autour du Monde," by Arago, of which an English translation was published. The expedition entered Sharks Bay on Spetember 12, 1818, and remained till about September 24.

Arago mentions "a prodigious number of whales sporting on the waves, approaching the vessel, which they sometimes struck with their enormous tails, and spouting into the air brilliant jets of water that reflected the colours of the rainbow. Several monstrous sharks likewise followed, in a constant and regular course, the light track of the ship; while a few turtle of prodigious size seemed, with their hard shell, to brave the murderous teeth of the most voracious of fish."

"A few birds of prey skimmed, with rapid wings, the flats washed by the waves. In the Bay of Seals we saw a prodigious number of those animals, which contended, no doubt, with clouds of pelicans assembled at the south point of the cove, for the sovereignty of the place, which I yield to them with all my heart. When we discharged our pieces we were answered by a prodigious number of birds, in plumage resembling our ducks, and in voice our ravens." The reefs were studded with oysters.

On Peron Peninsula "we saw only a single kangaroo. I saw two birds, that I took for cassowaries, to which I gave chase; but to my regret I could not come up with them." "I was attacked by such a prodigious number of flies, assailing my eyes and my mouth, that I had all the difficulty in the world to protect myself against them." "The sun sets; everything is dead. The myriads of flies that devoured us have disappeared; no insect wings through the air.— The sun reappears, the air is again peopled."

Captain King left Sydney on his second surveying voyage on the 8th May, 1819, and after passing up the east coast and through Torres Straits spent some time examining the coast of what is now the Northern Territory. The "Mermaid" entered Western Australian waters on September 16th at Lacrosse Island at the mouth of Cambridge Gulf, and from this point made a survey of the coast westward as far as Cape Voltaire, which point she left for Timor on October 16th. The following animals were met with on this portion of the Kimberley coastline.

A few kangaroos were seen and their tracks noticed on several occasions and kangaroo-rats were observed in Cambridge Gulf and Admiralty Gulf. Tracks of dingoes were also seen. At Adolphus Island in Cambridge Gulf "the noise made by the chain cable, in running through the hawse-hole, put to flight a prodigious number of bats that were roosting in the mangrove bushes; and which, flying

over, and about the cutter's mast, quite darkened the air with their numbers." "On the summit of Adolphus Island we observed a large hawk's nest, but it was deserted by its constructor." "Several birds new to us were seen" at Admiralty Gulf, "and we also found about the bushes the tail feathers of the cuculus phasianus."

"Off Cape Londonderry our people caught a porpoise." In Cambridge Gulf "many medusae were seen; and also a snake three feet long; its back was black, the belly yellow and the tail striped black and white."<sup>2</sup> One evening "after dusk Mr. Roe went with a party on shore in order to take turtle, and at eight o'clock returned with one of the hawk's bill species<sup>3</sup> (*Testudo imbricata?*) the meat of which weighed seventy-one pounds; about fifty eggs were also procured."

In Admiralty Gulf "an alligator<sup>4</sup> was lying asleep on the beach, but it rushed into the water as we passed the spot. The whole of this gulf is admirably formed for the trepang fishery, and the animal is extremely abundant among the reefs. Both fish and turtle are plentiful. The latter are of very large size; none, however, were taken to determine its species."

From Timor Captain King returned to Sydney by way of Bass Straits without sighting the coast of Western Australia.

On 13th July, 1820, the "Mermaid" left Sydney on her third surveying voyage to the north coast, and on this occasion a medical officer, Mr. Hunter, was added to her list. She proceeded by way of Torres Straits almost directly to the point at which she had left the coast the previous year, which she reached on 5th September. From this date until 14th October they were engaged in surveying the stretch of coast between Cape Voltaire and Brunswick Bay, including Montagu Sound and York Sound.

Traces of kangaroos were frequently met with in this district, and at Brunswick Bay Mr. Cunningham saw four individuals of a small species amongst the spinifex on the cliffs, whilst near the waterholes one of the crew saw a fifth, of a grey colour, and of a larger size than usual. Small opossums were twice noted, the second "appeared to be the same animal that the colonists at Port Jackson call 'the native cat'<sup>5</sup>; its colour was light red with white spots." "On first entering the cavern on Bat Island we were nearly overpowered by a strong sulphurous smell, which was soon accounted for by a flight of an incredible number of small bats, which were roosting in the bottom of the cave."

At York Sound "small birds were numerous, together with white cockatoos, cuckoos, some birds with very hoarse, discordant notes, and one whose note resembled the beating of a blacksmith's

<sup>1</sup> *Centropus phasianinus*, Latham (Coucal).

<sup>2</sup> *Pelamydrus platurus*, Linn.

<sup>3</sup> *Chelonia imbricata*, Linn.

<sup>4</sup> *Crocodilus porosus*, Schn.

<sup>5</sup> *Dasyurus hallucatus*, Gould.

hammer upon an anvil. At daybreak they all exerted themselves in full chorus." On the banks of Roe's River "some of our party thought they saw both an emu and a black swan amongst the bushes."

At Careening Bay "a few birds were observed on the wing, chiefly, however, of the pigeon kind." At Brunswick Bay "Mr. Hunter shot seven or eight brace of birds; they were of two kinds—one a species of oyster-catcher, and the other a sandpiper."

"A snake about seven feet long was seen at York Sound. "Alligators" were frequent in all the rivers, "as many as twelve were seen by Mr. Roe in his passage down Roe's River. Two were fired at, but the balls glanced off their tough coats of mail without hurting or scarcely frightening them." In Brunswick Bay, "as we passed a small round islet, an alligator, which had been basking in the sun, alarmed at our approach, rushed into the water and, as we came near the spot, rose to reconnoitre us, but instantly sunk again."

"If we may judge from the number of snakes at so advanced a period of the dry season, when they are generally in a dormant state, reptiles are very numerous" at Careening Bay. "Mr. Cunningham found a very curious species of lizard,<sup>1</sup> remarkable for having a thin membranaceous appendage attached to the back of its head and round the neck and falling over its shoulders in folds as low as the forearm. It was sent by Mr. Cunningham to the College of Surgeons, where it is now preserved. Small lizards, centipedes, and scorpions were numerous about our encampment; and the trees and bushes about the tents were infested by myriads of hornets and other insects, particularly mosquitoes and small sandflies, which annoyed us very much in the evenings."

In York Sound a "hill was strewed about with ant-hills constructed of dry dusty sand." In Roe's River "fish were plentiful, but principally of that sort which the sailors call 'cat-fish.' Of these several were caught."

For Captain King's fourth voyage a new and larger brig was purchased and named the "Bathurst," and a third officer, named Baskerville, joined the expedition. Mr. Montgomery replaced Mr. Hunter as surgeon. The "Bathurst" left Port Jackson on 26th May, 1821. On 13th July she was off Cassini Island on the Kimberley coast and proceeded to Careening Bay, passing the Maret Islands on the way. A further survey of Brunswick Bay was made and the coast followed southward as far as Cape Latouche Treville, from which they proceeded on 27th August to Mauritius for supplies.

"Many kangaroo-rats and small kangaroos were seen skipping about the rocks" at Brunswick Bay, "but they were very shy, and fled the moment they saw us."

In Collier's Bay "several whales, of that species called by whalers fin-backs, were playing about us all day, and during the

<sup>1</sup> *Chlamydosaurus kingi*, Gray (Frilled Lizard), v. infra.

morning two or three were seen near the vessel lashing the water with their enormous fins and tails, and leaping at intervals out of the sea which foamed around them for a considerable distance." Off Cape Levêque "during the afternoon we were surrounded by an immense number of whales leaping out of the water and thrashing the sea with their fins, the noise of which, from the calmness and perfect stillness of the air, was as loud as the report of a volley of musquetry." Off Point Gantheaume, also, King remarks: "As usual, we had been surrounded by whales." In Prince Regent's River "porpoises were observed as high as the first falls, a distance of fifty miles from the sea."

The Lacepede Islands "appear to be solely inhabited by boobies<sup>1</sup> and other sea-fowl." "Large flocks of boobies flew over the vessel at sunset, directing their course towards the reefs of these islands." "Large flights of boobies" were also seen off Point Gantheaume; "one of them lighted upon the deck, and was easily taken; it seemed to be the same bird (*Pelecanus fiber*) that frequents the reefs upon the north and north-eastern coasts."

Alligators were again observed in Prince Regent's River. Captain King writes. "The appearance of these animals in the water is very deceptive; they lie quite motionless, and resemble a branch of a tree floating with the tide; the snout, the eye, and some of the ridges of the back and tail being the only parts that are seen. The animal that we fired at was noticed for some time, but considered to be only a dead branch, although we were looking out for alligators, and approached within six yards of it before we found out our mistake. The length of this animal was from twelve to fifteen feet. I do not think that we have ever seen one more than twenty feet long."

"In the vicinity of the Maret Is. we saw many sea-snakes; one was shot and preserved; its length was four feet four inches; the head very small; it had neither fins nor gills; and respired like land snakes; on each scale was a rough ridge; it did not appear to be venomous." Off Cape Levêque "a snake about four feet long, of a yellowish-brown colour, rose up alongside, but instantly dived upon seeing the vessel."

In Brunswick Bay, "a successful haul of the seine supplied our people with abundance of fish, among which were mullets weighing from three to five pounds, cavallos, whittings, silver fish, breams, and two species of guard-fish." Another haul "procured about four dozen fish, principally mullet." Prince Regent's River "appears to abound with fish, particularly with mullet." "A curious species of mud-fish (*chironectes* sp. Cuvier) was noticed of amphibious nature, and something similar to what we have frequently before seen; these were, however, much larger, being about nine inches long. At low water the mud-banks near the cascade, that were ex-

<sup>1</sup> *Sula leucogaster*, Bodd.

posed by the falling tide, were covered with these fish, sporting about and running at each other with open mouths; but as we approached they so instantaneously buried themselves in the soft mud that their disappearance seemed the effect of magic: upon our retiring and attentively watching the spot, these curious animals would reappear as suddenly as they had before vanished. We fired at several, but so sudden were their motions that they generally escaped; two or three only were procured, which appeared, from their lying on the mud in an inactive state, to have been asleep; they are furnished with very strong pectoral and ventral fins, with which, and with the anal fin, when required, they make a hole into which they drop. When sporting on the mud, the pectoral fins are used like legs, upon which they move very quickly; but nothing can exceed the instantaneous movement by which they disappear. Those that were shot were taken on board, but on account of the extreme heat of the weather they had become so putrified as to be totally unfit for preservation."

Off Cape Levêque "some remora were swimming about the vessel the whole day." In the vicinity of the Maret Islands "a shark was taken eleven feet long; and many curious specimens of crustacea and medusa were obtained by the towing-net. Some of the latter were so diaphanous as to be perfectly invisible when immersed in the water. Among the former were a species of phyllosoma and the alima hyalina of Leach (*Cancer vitreus*, Banks and Solander MSS.; *Astacus vitreus*, Fabr. Syst. ent.)."

"Upon the reef off the east end of the Midway Isles, in Brunswick Bay, we found several varieties of coral, particularly *Explanaria mesenterina*, Lam.; *Caryophyllia fastigiata*, Lam.; and *Porites subdigitata*, Lam. The only shell that we observed upon the reef was a *Delphinula laciniata*, Lam. (*Turbo delphinus*, Linn.)."

After taking in supplies at Mauritius the "Bathurst" proceeded to King George's Sound to take in wood and water previous to commencing the examination of the west coast. She remained in the Sound for this purpose from Dec. 23, 1821, to Jan. 6, 1822.

Five seals were killed on Seal Island for the sake of their skins; the boat's crew also found some penguins (*Aptenodytes minor*) and a nest of iguanas on the island. Mr. Montgomery shot a few parakeets and water-birds on Green Island.

"During our visit," King remarks, "we caught but very few fish, and only a few oysters were obtained, on account of the banks being seldom uncovered. Shell-fish of other sorts were obtained at Mistaken Island in abundance, of which the most common were a patella and an haliotis; the inhabitant of the former made a coarse, although a savoury dish. There were also varieties of the following genera, viz.: lepas, chiton, cardium, pinna, nerita, two or three species of ostrea, a small mytilus, and a small buccinum of great beauty; that covered the rocks, and at low water might be collected in abundance."



The next point touched at was Rottnest Island, on which they landed on Jan. 14. King gives the following account of the animals met with:—"We disturbed a great many seals, but only killed three, and were much disappointed in finding that these animals were not of the fur species, as in M. de Freycinet's account of the island they are said to be; they were evidently the same description as those noticed at King George's Sound. The traces of a small kangaroo were everywhere abundant, but the animals were not seen. We walked to the easternmost of the lakes which M. de Freycinet remarks as being surrounded by an extensive beach, composed entirely of bivalve shells, a species of cardium; the quantity was indeed extraordinary. The banks were frequented by gulls and sandpipers, of which many were shot. The beaches were covered with dead shells of the genera buccinum, bulla, murex, trochus, and haliotis; but we found none with the living animal in them. Of the feathered tribe, a hawk and a pigeon were the only land birds seen; but boobies, terns, and sandpipers were very numerous about the shores."

From Rottnest the "Bathurst" proceeded to Sharks Bay and remained anchored inside Dirk Hartog Island from Jan. 20 to Jan. 26, whilst some minor repairs were effected. The following observations were made on the fauna of the island. A small black kangaroo was seen by Mr. Cunningham. He states that "it was feeding upon the seeds of a small acacia, and, upon perceiving my approach, fled across the down without reaching a single bush or rock large enough to conceal itself as far as the eye could discern it, so bare and destitute of vegetation are these arid, sandy plains." A small opossum<sup>1</sup> was also seen. "A seal of the hair species, like those of Rottnest Island, was seen on the rocks." "The remains of two or three whales that had been lately wrecked" were found on the coast.

"We saw two snakes of very distinct kinds, each exceeding five feet in length; the one black with a yellow belly, the other green and black, but they quickly escaped into holes, leaving a serpentine impression of their bodies upon the sand. These marks were seen and remarked near the edge of all the holes, which were very numerous upon the surface of the island, before I discovered that they were the tracks of reptiles; from which it may be inferred that these animals are very abundant."

Turtles were very numerous, fifty being turned in one night; a large quantity of their eggs were also obtained.

"The only bird seen was a solitary species of loxia, but upon a steep ledge of rocks," says Cunningham, "I observed one of those nests of which frequent mention has been already made. I examined and found it built upon the pinnacle of some large rocks, very strongly constructed of long sticks; it was about five feet high, and exceeded four feet in diameter, with a very slight cavity above, and seemed to have been very recently inhabited."

<sup>1</sup> *Perameles bougainvillei*, Quoy and Gaim.

“We had not been anchored five minutes,” says King, “before the vessel was surrounded by sharks, which at once impressed us with the propriety of Dampier’s nomenclature. One that was caught measured eleven feet in length, but the greater number were not more than three or four feet long. They were very voracious, and scared away large quantities of fish, of which, however, our people caught a good supply.” Five or six dozen snappers were obtained in one evening, besides some of the genus tetradon; these were the only two species obtained: “our people could not be persuaded to eat the tetradon, although the French lived chiefly upon it.” It was described by M. Lacepede in a paper in the *Annales du Museum d’Histoire Naturelle* (tom. iv., p. 203) as *le tetrodon argente* (*T. argenteus*).

A rocky reef fronting the shore was “covered with shell-fish, of which the principal sorts were species of trochus, chama, conus, voluta, cypræa, buccinum, ostrea, mytilus, and patella; among the latter was the large one of King George’s Sound. Upon the beaches we found varieties of sponge and coral; and *bêche-de-mer* were observed in the crevices of the rocks, but were neither large nor plentiful.”

From Sharks Bay the expedition passed north and surveyed various islands and shoals, but the only further notes on animals relate to the neighbourhood of what is now called King Sound.

From Point Cunningham, on Feb. 12, “the gentlemen brought off a few shells and some insects, among which was a beautiful sphynx; besides which, one of the boat’s crew caught a species of vampyrus, apparently similar to the flying fox of Port Jackson. Of shells there was not a great variety; a chama (*Tridacna gigas*, Lam.), a pinna, and the trochus (*cœruleus*) of Dirk Hartog’s Island; but at one of the fire-places they found a very large voluta<sup>1</sup> that seemed to have served the purpose of a water-vessel; it was fifteen inches long and ten inches in diameter.”

When off the Adele Islands, on Feb. 18, “towards sunset large flights of boobies, terns, and other sea-birds passed by, flying towards the islands.”

Soon after this date the “Bathurst” returned to Sydney round the south coast without again sighting Western Australia. Here she remained from April 25 to Sept. 25, on which date she left for England, calling in once more at King George’s Sound on her way home.

Thus ended Captain King’s long service on our coast-line. In one of the appendices to his Journal are contained the descriptions of the animals brought home by him. Unfortunately the exact localities are not nearly always recorded, and in the ensuing list I have only included those definitely recorded from within the limits of the State.

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<sup>1</sup> *Cymbium flammeum*, Bolten.

The following specimens appear to be those referred to in the journal, though in the appendix the locality from which they came is not given:—

PISCES : *Tetraodon argenteus*, Lacépède (? from Dirk Hartog Island, Sharks Bay).

LEPIDOPTERA : *Macroglossum kingii*, n. sp. (? from Point Cunningham, King Sound).

### List of Collections made on the Coast of Western Australia.

MAMMALIA—J. E. Gray:

*Pteropus edwardsii*, Desm.<sup>1</sup>—Point Cunningham. Large flights of these animals were observed in Cambridge Gulf.

*Canis australiac*, n. sp.<sup>2</sup>—Found on all parts of the coast.

*Otaria cinerea*, Peron and Lesneur.<sup>3</sup>—Found at Rottneest Island and at King George the Third's Sound. It appeared also to be the same species that frequents Sharks Bay.

AVES—P. P. King:

*Haleyon sacra*, Swainson.<sup>4</sup>—Taken at sea in the neighbourhood of Cambridge Gulf, having probably been blown off by a strong land wind.

*Centropus phasianus*, Illiger.<sup>5</sup> is found upon the eastern part of the North-West Coast.

*Haematopus picatus*, n. s.<sup>6</sup>—Common upon the shores of the continent generally.

*Aptenodytes minor*, Gmel.<sup>7</sup>—King George the Third's Sound.

*Larus georgii*, n. s.<sup>8</sup>—King George the Third's Sound, in the vicinity of Seal Island.

REPTILIA—J. E. Gray:

*Chlamydosaurus kingii*, n. s. figured.—Port Nelson, on the branch of a tree in Careening Bay. "I secured a lizard of extraordinary appearance, which had perched itself upon the stem of a small decayed tree. It had a curious crenated membrane like a ruff or tippet round its neck.

<sup>1</sup> This name was generally applied to an Indian species, though originally given to one from Madagascar. *Pteropus gouldi*, Peters, and *Pt. scapulatus*, Peters, are both found in the Kimberley Division.

<sup>2</sup> *Canis dingo*, Blumenb. 1780.

<sup>3</sup> *Zalophus lobatus*, Gray. The type of *Otaria cinerea* was obtained at Kangaroo Island, and this name given in 1816, should have precedence over *Arctocephalus forsteri*, Lesson, 1828.

<sup>4</sup> *Haleyon sanctus*, Vig. and Horsf.

<sup>5</sup> *Centropus phasianus*, Latham.

<sup>6</sup> *Haematopus ostralegus picatus*, King.

<sup>7</sup> *Endiaptula minor*, Forster.

<sup>8</sup> *Gabianus pacificus georgii*, King.

covering its shoulders, and when expanded, which it was enabled to do by means of transverse slender cartilages, spreads five inches in the form of an open umbrella."

*Tiliqua tuberculata*, Gray.<sup>1</sup>—Seal Island, in King George the Third's Sound.

*Trachysaurus rugosus*, n.s.—King George the Third's Sound.

*Leptophis punctulatus*, n.s.<sup>2</sup>—Careening Bay.

MOLLUSCA—J. E. Gray.

*Delphinula laciniata*, Lam.<sup>3</sup>—Found at low water upon the Coral Reefs, in the entrance of Prince Regent's River.

*Bulimus kingii*, Gray.<sup>4</sup>—Abundant on the hills of King George the Third's Sound, in the vicinity of Bald Head.

*Patella neglecta*, n.s.—Abundant on the rocky shores of K. G. Sound.

*Padollus rubicundus*, De Montfort.<sup>5</sup>—Found upon Rottneest Island.

In June, 1825, the French vessels "Thétis" and "Esperance," commanded respectively by de Bougainville and du Camper, were cruising about the Southern Coast. I have not at present been able to consult the published account of this voyage, and do not know whether members of the expedition made any observations on the fauna of Western Australia.

In October, 1826, the French ship "Astrolabe," commanded by Dumont d'Urville, spent about a fortnight at King George's Sound. The celebrated naturalists Quoy and Gaimard, who had already accompanied Freycinet's expedition in the "Uranie" and "Physicienne" previously referred to, were members of this expedition also, and published an account of the Zoology of the voyage, with illustrations of a large number of new species. I have here extracted the accounts of Western Australian animals from this work, and it will be noticed that in addition to the animals obtained on the voyage of the "Astrolabe" at King George's Sound a few from Sharks Bay obtained on the previous voyage are described.

The following general remarks on the two Western Australian localities examined by Quoy and Gaimard were written by them "to facilitate zoological researches":—

*Sharks Bay*.—This great extent of sea, sheltered by islands, is quite shallow. We were anchored near Peron Peninsula, on a bottom covered with fucus, which we were unfortunately unable to explore properly, and which appeared to promise an ample harvest of

<sup>1</sup> *Tiliqua scincoides*, White.

<sup>2</sup> *Dendrophis punctulatus*, Gray.

<sup>3</sup> *Angaria delphinus*, L. var. *laciniata*, Lamk.

<sup>4</sup> *Bothriembryon kingii*, Gray.

<sup>5</sup> *Haliotis scalaris*, Leach.

zoophytes of every kind, which will probably long remain unknown; for this country, lacking fresh water, cannot attract navigators.

We brought thence, more than ten years ago, specimens of *Vermetus*, whose tubes are attached to shells. *Voluta undulata* occurs there as well as the large species for which the genus *Cymbium*<sup>1</sup> was created, also *Pinna maritima* buried in the sand, which occurs in such numbers that it is necessary to wear shoes to avoid being cut by them. We collected there a completely black *Pleurobranchus* which we lost, and several species of bivalves. The borders of the salt lagoons are covered with *Cerithium album*.

On Dirk Hartog Island, ten leagues distant, tuns occur in numbers, also sponges and fragments of corals, which shows that there are localities where these latter grow, doubtless in small numbers, for on these sandy coasts the temperature is low at nights and must be unfavourable to their reproduction.

Riche and Peron have mentioned trees entirely fossilised, of which only the trunks remained. These productions ought to be studied anew in order to determine their origin, in the light of more recent knowledge.

*King George's Sound*.—This locality is rich in Molluscs. In the calm waters of Princess Royal Harbour, especially on the left, occur many varieties of *Phasianella*, a shell which was for a long time rare in collections. Bullas are there in hundreds, and at every step one crushes three or four species. Following the right bank, one meets with specimens of *Trochus*, many *Aviculas* fixed on the long leaves of fucus like the beads of a rosary, *Fusus*, *Buccinums*, *Naticas*, *Neritas*, *Barnacles*, etc. On the rocks on the two sides of the entrance of this harbour are enormous Limpets and long Acorn-barnacles which it is not always easy to obtain, because the sea breaks over them. In the crevices on the left, in the little rock-basins, we discovered accumulations of the large *Cerithium* level, very rare in collections. On these sluggish molluscs we found *Hipponyx australis*, formerly regarded as a *Patella*. Valves of *Solen* and of *Solemia*, perfectly whole, lie on the sandy shores. We could not obtain the animals of these latter, which are very similar to those found in the Mediterranean. By drawing a tangle along the bottom we captured small *Phasianellas*, which we also obtained with the dredge, as well as *Stomatellas* and *Cryptostomas*. But it was chiefly on Garden Island in the nests of terns and gulls that we obtained these latter shells, of which the molluscs serve as food to the young bird.

From the islands in the middle of the harbour *Turbo cooki* and *Haliotis* of a very large size were brought to us. The left bank of the Englishmen's River abounds in *Venus*, on which we fed. They are buried in the mud, but easy to obtain because they almost always

<sup>1</sup> *Cymbium flammeum*, Bolten.

bear an elegant moniliform fucus. In the same place there is also a small yellow Trochus of which the individuals occur in numbers on the stones. The swampy shores of this river are covered with *Ampullaria minima*, which belongs to our genus Ampullacera.

Sheltered places yielded us branches of *Astrea galaxea* whose polyp is a beautiful green colour. By dredging at the entrance of the Sound we obtained, in 50 fathoms, Comatulas<sup>1</sup> and flexible and stony corals.

In King George's Sound occur also Parmophoras, Boltenias, a large red species of Tubularia, etc.

On land we collected *Helix trilineata*; on Bald Head, *Succinea elongata* and *Bulimus melo*. The base of this hill, formed of limestone, has incrustations apparently very recent, where the same shells which live in the harbour are seen, such as the large Cerithium leve mentioned above. But in traversing its summit for three-quarters of its extent, we did not meet with the fossil corals mentioned by Vancouver.

The English seal-fishers exchanged skins of seals and kangaroos for spirits and tobacco. These men procured us abundance of fish, turtle-doves, a seal, and some black petrels in full plumage in large numbers. They obtained these birds in holes on the islands which are at the entrance of the sound. These fishermen had with them aboriginal women of New Holland and of Van Diemen's Land. These women fished, hunted with guns or, for kangaroos, with dogs; they dived to obtain for us oysters and other shells, and they procured for us a large number of large lizards which we could not have obtained without their help.

#### Mammals.

King George's Sound yielded us some young Perameles and a new species of kangaroo with a short tail, with long stiff fur, which we figure under the specific name of brachyurus. Some of the kangaroos were very large, but we could not obtain any although we hunted them with several dogs trained for this purpose, the kangaroos in their bounds left them far behind. The Australians have with them fine dogs with red hair which they call kangaroos. Descriptions and figures are given of:—

*Otaria australis*,<sup>2</sup> new sp., female.—Although this Otaria was young, it was nevertheless about to pass down the only foetus which its uterus contained. This Otaria comes from King George's Sound.

*Kangurus brachyurus*,<sup>3</sup> new sp.—It was recently dead when we found it, probably from disease, since there was no appearance of a wound.

<sup>1</sup> Ptilometra macronema, J. Müll.

<sup>2</sup> Zalophus lobatus, Gray.

<sup>3</sup> Macropus brachyurus, Q. and G. (Short-tailed Wallaby).

*Birds.*

If the travellers who visited King George's Sound before us have only found very few birds, it is because they have confined their excursions to the neighbourhood of the bay, which certainly has few of them; but in the forests adjoining the rivers named French and English (King and Kalgan), we found a considerable number and variety amongst the parrots and honey-eaters. New Holland is the home of these latter; but all the coastal species, even at Port Jackson, are little known.

A small black petrel exists in great numbers on the islets of King George's Sound. The aboriginal women, who lived with the English seal-fishers, brought us a large number every day; they said that they obtained them in holes, and it is a remarkable fact that they were all males. Were they nesting at this period, which was the month of October; and in that case why were they alone? We could not have been mistaken as to the sex, because they brought them plucked and cleaned. The genital organs alone remained and they were very well developed. The flesh of these birds was useful for feeding the dogs rather than the men.

These Australian countries are also the refuge of gulls, terns, and pelicans. The little Garden Island seems to be their place of special choice, and myriads of these birds were gathered together there. We also found there oyster-catchers and black swans. A flight of 30 or 40 pelicans rose into the air as we approached the island, where these birds appeared to be living. We found a dozen young pelicans. The English brought us some blue penguins and pretty little turtle-doves with metallic reflections.

Ascending Frenchman's River we met with flocks of pelicans, cormorants, black swans, white herons, musk ducks, and two other species of ducks. We killed a black swan, a brown duck, and two herons. M. Dumont D'Urville killed some pretty little cuckoos with green reflections on the back.

We only saw a single cassowary of large size, which we pursued without capturing it. Descriptions and figures are given of:—

*Muscicapa vittata*, new sp.,<sup>1</sup> King George's Sound.

*Muscicapa georgiana*, new sp.,<sup>2</sup> King George's Sound.

*Muscicapa gularis*, new sp.,<sup>3</sup> King George's Sound.

*Saxicola splendens*, new sp.<sup>4</sup>—Its habits are those of the blue wren. Like it, it carries its tail upright and it is ceaselessly in movement on the small bushes among which it lives. We obtained this beautiful wren at King George's Sound.

*Fringilla oculata*, new sp.<sup>5</sup>—This bird inhabits King George's Sound. It is rare there.

<sup>1</sup> *Amaurodryas vittata*, Q. and G. (Dusky Robin).

<sup>2</sup> *Eopsaltria georgiana*, Q. and G. (White-breasted Shrike Robin).

<sup>3</sup> *Eopsaltria griseicapilla*, Vieillot. (Grey-breasted Shrike Robin).

<sup>4</sup> *Malurus splendens*, Q. and G. (Banded Wren).

<sup>5</sup> *Zonaeginthus oculatus*, Q. and G. (Red-eared Finch).

*Psittacus (Platycercus) purpureocephalus*, new sp.,<sup>1</sup> King George's Sound.

*Psittacus semitorquatus*, new sp.,<sup>2</sup> King George's Sound.

#### *Reptiles.*

A snake five or six feet long, which from the structure of its teeth was a very dangerous species, was killed by M. Guilbert. Amongst the lizards we obtained some very large skins, animals whose movements are slow.

#### *Fish.*

The bad weather and the exigencies of work did not allow of our casting the seine-net, the best means of ascertaining varieties of fish; but we took a number with hook and line, and the English fishermen stationed in this port exchanged them every day for salted butter. The commonest was a large species of bream. Descriptions and figures are given of:—

*Plectropoma nigrorubrum*, Cuv. & Val.,<sup>3</sup> King George's Sound.

*Plectropoma dentex*, Cuv. & Val.,<sup>4</sup> King George's Sound.

*Plectropoma serratum*, Cuv. & Val.,<sup>5</sup> King George's Sound.

*Sillago punctata*, Cuv. & Val.,<sup>6</sup> King George's Sound.

*Malacanthus radiatus*, new sp.,<sup>7</sup> King George's Sound.

#### *Molluscs.*

At King George's Sound in the shallow and rather calm Princess Charlotte Harbour, the shore is covered with the shells of three or four species of *Bulla*. Here the animals prefer sandy bottoms. *Helix melo*, of the division *Bulimus*, covers the summit of Bald Head, in company with *Succinea elongatus*. King George's Sound and Sharks Bay provided us with a number of species of *Voluta*. *Cerithium leve* we only saw at King George's Sound, living in societies in the very sheltered spots among the cracks of the rocks, motionless at the bottom of the water; this habit accounts for its being covered with *Hipponyx*. King George's Sound yielded us specimens of *Parmophorus* of very large size. They are entirely black, sluggish in habits and hide under stones in places where there is only a little water. We could only obtain one living individual of *Cryptostoma* at King George's Sound; but we made a plentiful collection of its shells in the nests of the terns, which carry this mollusc to their young, for which it is a sort of ready-made tit-bit.

<sup>1</sup> *Purpureicephalus spurius*, Kuhl. (Red-capped King Parrot).

<sup>2</sup> *Barnardius semitorquatus*, Q. and G. (Twenty-eight Parrot).

<sup>3</sup> *Hypoplectrodes nigrorubrum*, Cuv. and Val.

<sup>4</sup> *Colpognathus dentex*, Cuv. and Val.

<sup>5</sup> *Acanthistius serratus*, Cuv. and Val. (Wirrah).

<sup>6</sup> *Isosillago punctata*, Cuv. and Val. (Spotted Whiting).

<sup>7</sup> *Odax radiatus*, Q. and G.



The little *Patella australis* of Lamarek belongs to Blainville's genus *Hipponyx*. The genus is remarkable in that it is always fixed by a semicircular muscle, which only allows the animal a slight motion of elevation and depression; it carries and hatches its eggs in a pocket with several cells, placed between the neck and the foot. The young issue from it and fix themselves on the surroundings and even on their parents. This species is abundant at King George's Sound.

Everywhere where sand occurs it is covered with oysters, which are long and wrinkled. Thus at Sharks Bay they were an agreeable food for us. Granite being predominant at King George's Sound, it was necessary to go to a distance to obtain a species which lives at a moderate depth unattached.

Figures and descriptions are given of:—

*Helix (Bulimus) Trilineata*, new sp.<sup>1</sup>—This species inhabits King George's Sound, but is not as common there as the following. We found it on the summit of Bald Head and in a very circumscribed area of Princess Royal Harbour. The animal only emerges from its shell rarely and slowly.

*Helix (Bulimus) melo*, Fer.<sup>2</sup>—This *Helix* is very common at King George's Sound, especially on the summit of Bald Head. We collected them in hundreds amongst the *Succineas*, which are equally widely distributed there in spite of the dryness which appears to exist on this mountain. Discoloured individuals are sometimes alive. This mollusc is so timid that we could not get it to emerge in order to draw it. We could ascertain, however, that it does not differ at all from the true *Helix*. At the period when we were on the coast of New Holland, the month of October, the individuals which we met with were nearly all dead. Can their occurrence in such a large number on a mountain be due to the custom of the aborigines of setting fire perpetually to the bushes and grasses of the plains?

*Helix georgiana*, new sp.<sup>3</sup>—This species inhabits King George's Sound. We do not know the animal.

*Vitrina nigra*, new sp.—King George's Sound provided us with individuals (smaller than those at Port Western) living under the trees, at a distance from fresh water.

*Ampullacera fragilis*, Lamk.<sup>4</sup>—We collected this variety by handfuls on the grassy and swampy shores of the Englishman's river at King George's Sound. It was doubtless from this locality that Peron brought them.

*Physa georgiana*, new sp.<sup>5</sup>—King George's Sound.

*Cryptostoma zonalis*, new sp.<sup>5</sup>—This is the staple food of the young sea-birds. The parents have only, with one blow of the

<sup>1</sup> *Bothriembryon kingii*, Gray.

<sup>2</sup> *Rhytida georgiana*, Q. and G.

<sup>3</sup> *Salinator fragilis*, Lamk.

<sup>4</sup> *Isidora georgiana*, Q. and G.

<sup>5</sup> *Sinum zonale*, Q. and G.

beak, to remove from this mass of flesh the shell which surmounts it in order to have a natural ready prepared food. We do not know in what localities they find them; probably it is in the islets and on the rocks washed by the waves, since in the whole circumference of King George's Sound we never found one. Our solitary individual, although living, lacked the specific zonal band. It was especially on Garden Island that we collected so many of their shells.

*Natica plumbea*, Lamk.<sup>1</sup> King George's Sound.

*Bulla bicincta*, new sp.<sup>2</sup>—It inhabits Princess Royal Harbour in King George's Sound. In this place we saw the greatest collection of Bullas of every species all together.

*Bulla australis*, new sp.<sup>3</sup>—These shells can be collected by basketfulls in King George's Sound. They delight in the fairly calm waters of Princess Royal Harbour. When the animal is dead its shell becomes detached and is preserved intact among the masses of fucus piled up by storms.

*Bulla brevis*, new sp.<sup>4</sup>—Excessively common at King George's Sound.

*Bulla arachis*, new sp.<sup>5</sup> King George's Sound.

*Buccinum costatum*, new sp., King George's Sound.

*Buccinum litiopa*, Rang.—This species comes from the South-west coast of New Holland.

*Fusus australis*, new sp., King George's Sound.

*Triton leucostomum*, Lamk, King George's Sound.

*Dolium perdriv*, Lamk.<sup>6</sup>—The real home of the Doliums is the little island of Dirk Hartog and Sharks Bay, on the west coast of New Holland. We explored this region in the voyage of the "Uranie," with M. de Freycinet, and nowhere else have we seen so many fragments of them, though we were unable to secure a single living individual.

*Voluta undulata*, Lamk.<sup>7</sup>—We found *Voluta undulata* on the coasts of New Holland, at Sharks Bay, and at King George's Sound.

*Conus luteus*, new sp.—This species was captured, with many others, in about 50 fathoms, at the entrance of King George's Sound.

*Cerithium leve*, new sp.<sup>8</sup>—This *Cerithium* inhabits King George's Sound. We met with them on one occasion to the number of a hundred collected together in a calm place, shut in by the mass of rocks which are at the left of the entrance to Princess Royal

<sup>1</sup> *Polinices plumbea*, Lamk.

<sup>2</sup> *Akera bicincta*, Q. and G.

<sup>3</sup> *Bullaria australis*, Gray.

<sup>4</sup> *Haminea brevis*, Q. and G.

<sup>5</sup> *Cylichna arachis*, Q. and G.

<sup>6</sup> *Tonna perdriv*, Linn.

<sup>7</sup> *Scaphella undulata*, Lamk.

<sup>8</sup> *Ceratoptilus levis*, Q. and G.

Harbour. As they were in shallow water we obtained them easily. We observed them on various occasions and at different hours of the day, but never saw them show the least sign of movement. Besides, they were covered with rather large specimens of *Hipponyx* which appeared to have multiplied there peacefully. This was in the month of November. Had these animals assembled in such numbers for breeding purposes? We cannot say. We regret that we did not make researches on their sex at the time. All those which we brought back in spirit are females.

In examining the base of Bald Head, we recognised several of these same *Cerithiums* enclosed in limestone between tide-marks. We suppose that these shells are not fossil but merely encrusted in the rock.

*Turritella granosa*, new sp.,<sup>1</sup> King George's Sound.

*Turbo torquatus*, Lamk.<sup>2</sup>—This Turbo, which attains a large size, inhabits King George's Sound. We found few living individuals.

*Turbo fimbriatus*, Lamk.<sup>3</sup>—King George's Sound.

*Phasianella bulimoides*, Lamk.<sup>4</sup>—King George's Sound.

*Phasianella ventricosa*, new sp.—King George's Sound.

*Trochus irisodontes*, new sp.<sup>5</sup>—King George's Sound.

*Trochus luteus*, new sp.—This Trochus occurs throughout King George's Sound, but principally in the little salt creeks.

*Vermetus arenarius*, Lamk.<sup>6</sup>—Inhabits King George's Sound, living, at a considerable depth, on other shells.

*Vermetus dentiferus*, Lamk.—Obtained in Sharks Bay on an Avicula.

*Stomatella auricula*, Lamk.<sup>7</sup>—Our individuals came from the same place as the one which is in the Museum (Paris), which Peron brought from King George's Sound.

*Haliotis albicante*, new sp.—King George's Sound, on the rocks at the entrance. It is so common that it is surprising that Peron did not describe it.

*Parmophorus australis*, Lamk.<sup>8</sup>—This Mollusc inhabits King George's Sound, where, however, we only found it on one occasion. It lives for a long time in the air, and we watched one climb out of the water in which we had placed it.

*Emarginula australis*, new sp.<sup>9</sup>—King George's Sound.

<sup>1</sup> *Epitonium granosum*, Q. and G.

<sup>2</sup> *Turbo stamineus*, Martyn var. *lamellosus*, Brod.

<sup>3</sup> *Astrarium fimbriatum*, Lamk.

<sup>4</sup> *Phasianella australis*, Gmel.

<sup>5</sup> *Cantharidus irisodontes*, Q. and G.

<sup>6</sup> *Serpulus siphon*, Lamk.

<sup>7</sup> *Gena auricula*, Lamk.

<sup>8</sup> *Scutus anatinus*, Don.

<sup>9</sup> *Subemarginula australis*, Q. and G.

*Emarginula rugosa*, new sp.<sup>1</sup>—King George's Sound.

*Patella compressa*, Lamk.—King George's Sound.

*Patelloida conoidea*, new sp.<sup>2</sup>—Inhabits King George's Sound, where it is very rare, for we only met with it once.

*Patelloida elongata*, new sp.<sup>3</sup>—King George's Sound.

*Patelloida septiformis*, new sp.<sup>4</sup>—King George's Sound.

*Patelloida punctata*, new sp.<sup>5</sup>—King George's Sound.

*Chiton georgianus*, new sp.<sup>6</sup>—This Chiton is very common at King George's Sound.

*Chiton sulcatus*, new sp.<sup>7</sup>—This Chiton inhabits King George's Sound, where it is rare.

*Hipponyx australis*, Lamk.<sup>8</sup>—This shell inhabits the southern extremity of New Holland, especially King George's Sound, where we found many individuals on our large Cerithium leve, as may be seen at the Museum.

*Hipponyx foliacea*, new sp.—We met with a variety, or perhaps another species, at King George's Sound, but we did not see the animal.

*Pecten foliacea*, new sp.<sup>9</sup>—King George's Sound.

*Avicula georgiana*, new sp.<sup>10</sup>—Aviculas are very common in King George's Sound. Long rows of various species are found fixed in groups on the leaves of *Zostera* or other seaweeds. Their byssus is so short that they appear to be attached to the object on which they occur by their valves. It is in the sheltered Princess Royal Harbour that they are most plentiful, the piles of seaweeds serving to protect their fragile shells from breakage.

*Venus Zelandica*, new sp.—This Venus occurs in New Zealand, but it is much commoner at King George's Sound. In the shallow muddy parts of the Frenchmen's River we could not obtain the pretty moniliform fucus which is abundant there, without bringing up with each one of these shells which served for its attachment. They are very good to eat, but they were not in very good condition at the season when we were there, which was the month of October.

#### *Brachiopod.*

The only species figured and described is:—

*Terebratulina recurva*, new sp.,<sup>11</sup> of which one individual was obtained at King George's Sound.

<sup>1</sup> *Submarginula rugosa*, Q. and G.

<sup>2</sup> *Acmaea conoidea*, Q. and G.

<sup>3</sup> *Acmaea elongata*, Q. and G.

<sup>4</sup> *Acmaea septiformis*, Q. and G.

<sup>5</sup> *Acmaea punctata*, Q. and G.

<sup>6</sup> *Acanthopleura georgiana*, Q. and G.

<sup>7</sup> *Ischnochiton sulcatus*, Q. and G.

<sup>8</sup> *Hipponyx conicus*, Schum.

<sup>9</sup> *Pecten lividus*, Lamk.

<sup>10</sup> *Pteria papilionacea*, Lamk.

<sup>11</sup> *Waldheimia flavescens*, Lamk.

*Tunicates.*

*Salpa confoederata*, Forskal.—Our examples come from the west coasts of New Holland.

*Ascidia reticulata*, new sp.—King George's Sound.

*Ascidia spinosa*, new sp.—King George's Sound.

*Ascidia australis*, new sp.<sup>1</sup>—King George's Sound.

*Ascidia spinifera*, new sp.<sup>2</sup>—King George's Sound.

*Aplidium pedunculatum*, new sp.<sup>3</sup>—King George's Sound.

*Cirripede.*

The only species figured and described is:—

*Anatifa hirsuta*, Q. and G.<sup>4</sup>—This species lives in groups on the rocks of Princess Royal Harbour at King George's Sound, and in some other places in New Holland. It was doubtless from the same locality that it was brought to M. Cuvier by Peron.

*Holothurian.*

The only species figured and described is:—

*Holothuria fulva*, new sp.—King George's Sound.

*Coelenterates.*

The following are figured and described.—

*Actinia tuberculosa*, new sp.—King George's Sound.

*Lobophyllia aurea*, new sp.—King George's Sound.

*Astrea galaxea*, Lamk.—This *Astrea* occurs at King George's Sound in sheltered places in shallow water.

*Acyonum terminale*, new sp.—Inhabits King George's Sound, probably at a great depth.

*Insects.*

Either the season was not sufficiently advanced for insects, or his place contains very few, for our collections of this group were almost none.

The bloodthirsty mosquitoes which pursued us everywhere did not help to make our walks agreeable.

The following insects, all from King George's Sound, are described by Boisduval, who wrote the entomological portion of the results of the voyage. None of them are figured:—

*Coleoptera.*

*Melolontha (Aplonycha) astrolabei*, new sp.<sup>5</sup>

*Prostomus (Cherrus) australis*, new sp.

*Cncorhinus impressipennis*, new sp.<sup>6</sup>

*Periteles lateralis*, new sp.

*Amycterus (Phalidurus) scorpio*, new sp.<sup>7</sup>

*Cryptocephalus monochroa*, new sp.

<sup>1</sup> *Boltenia australis*, Q. and G.

<sup>2</sup> *Boltenia gibbosa*, Heller.

<sup>3</sup> *Colella pedunculata*, Q. and G.

<sup>4</sup> *Ibla quadrivalvis*, Cuvier.

<sup>5</sup> *Haplonycha astrolabei*, Borsd.

<sup>6</sup> *Catasarcus impressipennis*, Borsd.

<sup>7</sup> *Enomus scorpio*, Borsd.

*Diptera.**Musca australis*, new sp.

In addition to the official account of the voyage of the "Astrolabe," Dumont d'Urville wrote a popular account of King George's Sound in his "Voyage Pittoresque autour du Monde." This account does not add anything to our knowledge of the fauna of the locality.

The fear of French annexation of the Western and Southern coasts of Australia had already caused General Darling, then Governor of New South Wales, to draw the attention of the Secretary of State for the Colonies to the possibility, and to ask that steps be taken to avert it.

In consequence, Darling was directed to take steps to form a settlement at King George's Sound, and on November 8th, 1826, the colonial brig "Amity" sailed from Sydney having on board Major Lockyer in command of a party for this purpose, consisting of a detachment of the 39th regiment under Captain Wakefield, a surgeon and 24 convicts.

The "Amity" reached the Sound on Christmas Day, and a settlement was formed on the site of the town of Albany. This little penal settlement remained in existence till March, 1831, when the convicts were withdrawn and the district placed under the control of the Swan River Colony, which had been established in the interval.

Major Lockyer returned to Sydney in April, 1827, and what little we know of the early history of Albany is derived from his diary. From this the following references to animals are extracted:

"Kangaroos are numerous and of large size, one that was shot weighed 75lbs. after the inside had been taken out. The only animal except the kangaroo that was met with was the wild native dog.

The islands along the Southern Coast are more or less frequented by the black or fur seal. The coast also abounds with the sperm whale and they have not as yet been molested.

Black swans, wild geese, ducks, musk ducks and teal, pelicans, curlew, red bills, sandpipers, and a number of other water-birds are plentiful.

The islands on the coast and vicinity of King George's Sound are frequented by penguins and mutton birds. The latter can be taken in any quantities that may be required and are an excellent substitute for fresh provisions. In the months of September and November their eggs, which are very good and as large as those of ducks, are to be had in great quantities. Even in January some that we brought from the Eclipse Island, and of which I partook, were not at all inferior to duck eggs.

Black and white cockatoos were seen with a great variety of parrakeets, with also a great variety of small birds that sing very prettily, but I did not observe any with particularly handsome plumage.

Great quantities of fish were obtained with the seine; on one occasion a single haul capturing what was estimated as a ton weight. The most important species were bream, whiting, sand mullet, large mullet and the fish called salmon.

Exceedingly fine oysters are to be had as well as abundance of sand-coekles.

Great quantities of sponge are found on the shore around the harbours, as well as on the sea coast, washed up, and by dredging for it pieces would be brought up that would prove a valuable article of trade."

Further information as to the animals of the Albany district is to be found in a "Description of the Natives of King George's Sound (Swan River Colony), and adjoining Country," written by Mr. Scott Nind, medical officer of the settlement from its commencement till October, 1829. This is to be found in Vol. I. of the Proceedings of the Royal Geographical Society, published in 1832.

Mr. Nind's account of the natives includes details of the methods they pursue for capturing the principal animals on which they feed.

The following particulars about their haunts and habits are given incidentally.

Kangaroos (native names: male—Yungur; female—Warre) are not very plentiful near the coast, preferring the open forest country further inland.

The Brush Kangaroo<sup>1</sup> is, however, common in the scrub country near the coast. Four species of wallaby are distinguished by native names—Nailoit, Wahl, Tāāmur<sup>2</sup> and Quakur.<sup>3</sup>

There are two species of opossums which are not often found in the same districts. The larger<sup>4</sup> (native name—Comal) lives chiefly in lofty and thick woods. It is of a lighter colour, with longer fur, and fatter than the second, and has a brownish bushy tail; the second is the common ring-tail<sup>5</sup> (Nworra) which is frequently found in the swamps and the low brush which surrounds them.

The bandicoot<sup>6</sup> (Quernde) is another common animal.

The wild dog (Toort) is sometimes killed by the natives, who eat their flesh. Upon finding a litter of young they generally carry away one or two to rear. In this case it often occurs that the mother will trace and attack them; and being of a large size, and very strong; they are rather formidable. But, in general, they will stand and look for a few moments, and leisurely retire.

Many seals (Barlard) of the black furred species occur on the rocks off the coast, and a sickly whale (Mammang) is not infrequently cast on the shore.

<sup>1</sup> *Macropus irma*, Jourd.

<sup>2</sup> *Macropus eugenii*, Desm.

<sup>3</sup> *Macropus brachyurus*, Q. and G.

<sup>4</sup> *Trichosturus vulpecula*, Kerr.

<sup>5</sup> *Pseudochirus occidentalis*, Thos.

<sup>6</sup> *Isodon obesulus*, Shaw.

Emus (Wait) are more plentiful further north than in the immediate vicinity of the Sound; they lay their eggs in winter.

Other birds that are mentioned are Parrots (Noorlark, Tiajip, Bernanore, Towern, Teer), the Black Cockatoo (Currāāk), White Cockatoo (Munnit), Black Eagle<sup>1</sup> (Nailoit or Warlit), Hawk (Corriore), Black Swan (Marlie), Musk Duck (Coatchuck), other Ducks (Wackerren and Wainern), Bronze Pigeon (Moorhait), Quail (Pourriock or Pourrha) and Night Cuckoo<sup>2</sup> (Combiae).

The largest lizard (Munnāar) resembles an iguana found at Sydney. It is long, and generally very lean and lank. At one season, however, it is fat, and very good eating. It makes a hole in the nest of a species of ant, which is a mound of earth four or five feet high, the inner part consisting of cells constructed of a gummy substance mixed with earth, which is very hard; yet the munnāar burrows from the top nearly to the bottom, and there deposits its eggs, which are the size of a large pigeon's egg, covered with a thick pellicle as tough as parchment. The eggs are about ten or twelve in number, and adhere together. The ants soon repair the hole made by the munnāar, and the warmth of the nest is sufficient to hatch the eggs. These eggs have an oily taste, and will not easily mix with either warm or cold water, but nevertheless they are very good eating.

The second species of lizard (Wandie) is of a very dark colour, and has a long round tail. It is generally found among rocks and conceals itself under them; it also inhabits hollow trees or holes in the ground; and is a very lively animal, and quick in its motions.

The third species, or short-tailed<sup>3</sup> (Youern), has a large head and an enormous mouth, which, when attacked, it immediately opens, and exhibits a purplish-coloured tongue; its body is covered with large scales of a grey colour, but having transverse patches of brown. It is very sluggish, and does not burrow in holes, but conceals itself in long grass. They are frequently found in pairs. The female, when pregnant, has two large eggs in her, but I have never seen them when deposited. According to the natives she buries them in the ground very near the surface, and they are hatched by the warmth of the sun. These youerns are frequently found in the ants' nests, constructed of straw or leaves, with minute portions of sand. I do not, however, know if they lay their eggs there, or whether they feed upon the ants.

The common diamond snake<sup>4</sup> of New South Wales (Wackul) is not poisonous. It is eaten by the natives together with the Norne and Docat which are much alike, of very dark colour, six and seven feet in length, and their bite generally fatal. There is another species of a smaller size, and sienna colour, of which al-

<sup>1</sup> *Uroaetus audax*, Lath. (Wedge-tailed Eagle).

<sup>2</sup> *Ninox boobook*, Lath. (Boobook Owl).

<sup>3</sup> *Trachysaurus rugosus*, Gray.

<sup>4</sup> *Python spilotes*, White. (Carpet Snake).



though the bite is venomous, it seldom occasions death. Other small species occur.

The fresh-water tortoise<sup>1</sup> (Kilon) lays its eggs on shore, generally on a bank about twenty or one hundred yards from the water, buried in a small hole, and carefully covered up.

Frogs (Cooyah) of several species occur.

Fish (Wallah) are very plentiful, in the autumn the smaller species approach the shores in large shoals.

Sharks (Martiat) are very numerous, but the natives are not at all alarmed at them and say that they are never attacked by them. Sting rays and maiden rays are also common.

The fresh-water swamps abound with a species of crayfish (Challows) very like those found in rivulets in England. In the summer months when the water is partly dried up they are found in holes in the ground a foot or more deep, the entrance being small, but sufficiently wide within for the arm to be thrust to the bottom.

A species of Cockchafer (Pāāluck) deposits its ova upon the fallen grass-trees; they develop into large milk-white grubs. Other kinds of white grubs (Changut), some of much larger size, are procured from rotten trees, bull-rushes, etc.

A bee is found at King George's Sound.

Oysters and other edible kinds of shell-fish are to be obtained in large quantities.

On January 17, 1827, Captain James Stirling, R.N., sailed from Sydney to examine the country in the vicinity of the Swan River. He had on board as a passenger Mr. Charles Fraser, Colonial Botanist of New South Wales. Both these gentlemen gave a glowing report of the district, and as a result it was decided to establish a settlement on the banks of the Swan River.

The following extracts from Capt. Stirling's Report to the Admiralty record the animals met with:—

Kangaroo, Opossum, and Tortoise are the only Land Animals whose existence we can answer for here. The Native Dog we heard occasionally at night, but did not see him.

Of Reptiles the amount is short. Lizards and Guannas were seen and one Snake only the whole time we were there; it was, however, the dry season, during which it is probable they remain torpid in their retreats.

Of Birds the list is longer. There are found here the Emu, and in the greatest abundance Swans and several varieties of the Duck tribe. Cockatoos—white and black, a new species of the first colour was seen in great beauty. Pigeons, Quails, and Parroquets were also numerous, and to the above-mentioned may be added some Birds of very melodious note, which were heard but not seen.

We saw many Seals on the Islands, but all of the hair, or least valuable, species. It was not the season for Whales, but their

<sup>1</sup> *Chelodina oblonga*, Gray.

wrecks strewn the shore of Geographe Bay. Sharks were enormous and numerous, and Fish generally exist here in great abundance.

The bottom of the sea is composed of a calcareous sand, sometimes passing into marl or clay. On this there are endless varieties of marine plants, and these seem to form the sustenance of quantities of small fish.

When it is considered that the bank extends a hundred miles from the shore, and whenever the bottom is seen presents a moving picture of various animals gliding over the green surface of the bottom, it is not too much to look forward to the time when a valuable fishery may be established on these shores.

Of shells there is the greatest abundance; they are thrown up on the beach in a bed of several feet in thickness.

In the narrative mention is also made of Red-bills seen on the Swan River, and of a point on its banks which contained the greatest number of mosquitoes of all places he had ever visited.

On May 2, 1829, Captain Charles Fremantle, of H.M.S. "Challenger," hoisted the British flag on the South head and took formal possession in the name of His Majesty King George IV. of "all that part of New Holland which is not included within the territory of New South Wales."

A month later, on 2nd June, the transport "Parmelia" arrived, having on board Captain Stirling, who had been appointed Lieutenant-Governor of the new colony, and the first party of settlers.

At this point I must close this second part of my "History."

The following is a list of all the animals mentioned in the narratives quoted as far as I have been able to identify them. The identifications in many cases depend on the fact that only one species of a particular family is known to inhabit the district from which it was described, *e.g.* *Macropus eugenii*, on the Abrolhos Islands. In other cases the actual description gives sufficient particulars for an accurate identification.

In all cases where there was any reasonable doubt as to the species met with, I have only included the family or larger group to which the species belongs.

The distribution is indicated by the Roman numerals which refer to the areas shown on the accompanying map, for which I am indebted to my colleague Mr. G. Pitt Morison. The date after each indicates the year in which the species or family was discovered in the district, not that in which the discovery was published.

#### MAMMALIA.

#### MARSUPIALIA.

*Peramelidae* (Bandicoots) II. 1826.

*Perameles bougainvillei*, Q. and G., IV. 1822.

*Dasyuridae* (Native Cats).

*Dasyurus hallucatus*, Gould VI. 1820.

*Phalangeridae* (Opossums) III. 1827.

*Pseudochirus occidentalis*, Thos. II. 1829.

*Trichosurus vulpecula*, Thos. II. 1829.

*Macropodidae* (Kangaroos) V. 1801, VI. 1699.

*Lagostrophus fasciatus*, Peron IV. 1699.

*Macropus brachyurus*, Q. and G. II. 1826, III. 1658.

*Macropus eugenii*, Desm. I. 1802, II. 1829, III. 1629.

*Macropus irma*, Jourd. II. 1829.

*Macropus giganteus*, Zimm. I. 1792, II. 1791, III. 1827.

SIRENIA (Dugong).

*Halicore dugong*, Illig. IV. 1803, VI. 1688.

CETACEA (Whales) II. 1791, III. 1801, IV. 1699, V. 1801,  
VI. 1699.

*Physeteridae* (Sperm Whales).

*Physeter macrocephalus*, L. II. 1827.

*Delphinidae* (Dolphins) VI. 1699.

CARNIVORA.

*Canidae* (Dogs).

*Canis dingo*, Blumenb. I. 1792, II. 1803, III. 1697, IV. 1801,  
V. 1801, VI. 1688.

*Otariidae* (Sea-lions).

*Zalophus lobatus*, Gray I. 1792, II. 1791, III. 1656, IV. 1699.

CHIROPTERA (Bats) VI. 1820.

*Pteropodidae* (Flying-foxes) VI. 1819.

AVES (Birds).

CASUARIIFORMES.

*Dromiceidae* (Emus).

*Dromiceus novæ-hollandiæ*, Latham I. 1792, II. 1802, III. 1697,  
IV. 1818.

SPHENISCIFORMES.

*Spheniscidae* (Penguins).

*Endyptula minor*, Forster I 1792, II. 1791.

COLUMBIFORMES.

*Columbidae* (Pigeons) VI. 1699.

*Phaps chalconota*, Latham I. 1792.

*Phaps elegans*, Temm. III. 1629.

PROCELLARIIFORMES.

*Puffinidae* (Shearwaters) I. 1791, II. 1826, III. 1658, IV. 1699,  
V. 1803.

*Daption capense*, Linn. III. 1801.

*Diomedidae* (Albatrosses) I. 1791.

## LARIFORMES.

*Lariidae* (Gulls and Terns) I. 1791, II. 1791, III. 1618, IV. 1635, V. 1699.

*Anous stolidus*, Linn. V. 1803, VI. 1699.

*Larus novæhollandiæ*, Stephens II. 1791.

*Catharactidae* (Skuas).

*Catharacta lonnbergi*, Mathews I. 1792.

CHARADRIIFORMES I. 1792, IV. 1627.

*Haematopodidae* (Oyster-catchers).

*Hæmatopus ostralegus*, Linn. I. 1792, II. 1791, III. 1827, IV. 1699, V. 1699, VI. 1699.

*Recurvirostridae* (Avocets).

*Recurvirostra novæhollandiæ*, Vieillot IV. 1699.

*Scelopacidae* (Curlews and Snipe).

*Numenius cyanopus*, Vieillot II. 1791, IV. 1699, V. 1818, VI. 1699.

## ARDEIFORMES.

*Plegadidae* (Ibises).

*Carphibis spinicollis*, Jameson IV. 1699.

*Ardeidae* (Hérons) II. 1826.

## ANSERIFORMES.

*Anatidae* (Swans, Geese, and Ducks) II. 1791, IV. 1697.

*Chenopsis atrata*, Latham II. 1791, III. 1697.

*Cereopsis novæhollandiæ*, Latham I. 1792, II. 1826.

*Biziura lobata*, Shaw II. 1791.

## PELECANIFORMES.

*Phalacrocoracidae* (Cormorants) II. 1791, III. 1697, IV. 1699, V. 1699.

*Sulidae* (Gannets) I. 1791, IV. 1699.

*Sula leucogaster*, Boddaert VI. 1699.

*Fregatidae* (Frigate-birds).

*Fregata ariel*, Gould VI. 1699.

*Pelecanidae* (Pelicans).

*Pelecanus conspicillatus*, Temm. II. 1791, III. 1697, IV. 1699, V. 1818, VI. 1791.

## ACCIPITRIFORMES.

*Falconidae* (Eagles and Hawks) II. 1791, IV. 1699, VI. 1699.

*Uroæetus audax*, Lath. II. 1829.

## PSITTACIFORMES.

*Cacatuidae* (Cockatoos) II. 1829, III. 1697, V. 1699, VI. 1820.

*Calyptorhynchus* sp. II. 1818, III. 1827.

*Cacatua leadbeateri*, Vigors I. 1792.

*Psittacidae* (Parrots), I. 1792, II. 1791, III. 1697.

*Purpureicephalus spurius*, Kuhl II. 1826.

*Barnardius semitorquatus*, Q. and G. II. 1826.

## CORACIFORMES.

*Alcedinidae* (Kingfishers).

*Haleyon Sanetus*, Vigors VI. 1818-22.

## COCCYGES.

*Cuculidae* (Cuckoos) VI. 1820.

*Chalcoeoccyx* sp. II. 1826.

*Centropus phasianinus*, Latham VI. 1819.

PASSERIFORMES II. 1791, IV. 1699, VI. 1699.

*Muscicapidae* (Flycatchers) I. 1792, IV. 1801, V. 1801,

*Amaurodryas vittata*, Q. and G. II. 1826.

*Eopsaltria georgiana*, Q. and G. II. 1826.

*Eopsaltria griseicapilla*, Vieillot II. 1826.

*Sylviidae* (Warblers).

*Malurus lamberti*, Vigors IV. 1801.

*Malurus splendens*, Q. and G. II. 1826.

*Laniidae* (Shrikes) IV. 1801.

*Meliphagidae* (Honey-eaters) II. 1826.

*Ploceidae* (Weaver-finches).

*Zonaeginthus oculus*, Q. and G. II. 1826.

## REPTILIA.

## CROCODILIA.

*Crocodylidae* (Crocodiles).

*Crocodylus porosus*, Schn. VI. 1819.

## CHELONIA.

*Cheloniidae* (Turtles) IV. 1697, V. 1801, VI. 1688.

*Chelonia imbricata*, Linn. VI. 1803.

*Chelonia mydas*, Linn. IV. 1699, V. 1699, VI. 1699.

*Chelydidae* (Freshwater Tortoises)

*Chelodina oblonga*, Gray II. 1829, III. 1827.

LACERTILIA (Lizards) II. 1791, III. 1801, VI. 1699.

*Geckonidae* (Geckoes) IV. 1801.

*Varanidae* (Monitors) II. 1818, III. 1827, IV. 1801, V. 1818.

*Scincidae* (Skinks) II. 1803.

*Trachysaurus rugosus*, Gray II. 1802, IV. 1699

OPHIDIA (Snakes) I. 1792, II. 1791, III. 1697, VI. 1699.

*Pythonidae* (Boas) V. 1801.

*Python spilotes*, White II. 1829.

*Hydrophiinae* (Sea-snakes) III. 1801, IV. 1699, V. 1699, VI. 1699.

*Pelamysdrus platurus*, Linn. VI. 1819.

## AMPHIBIA.

## ANURA.

*Hylidae* (Frogs) II. 1803.

## PISCES (Fish).

## ELASMOBRANCHII.

PLEUROTREMATA (Sharks) II. 1818, III. 1801, IV. 1697, V. 1699, VI. 1699.

- Carchariidae* (Sharks).  
*Prionace glauca*, Linn. I. 1792.  
*Pristiophoridae* (Saw-sharks) IV. 1801.  
*Squatinae* (Angel-sharks) V. 1699.  
 HYPOTREMATA (Rays) II. 1803, IV. 1699.  
 TELEOSTEI III. 1696, IV. 1699, VI. 1699.  
*Clupeidae* (Herrings) IV. 1801, V. 1801.  
*Plotosidae* (Cat-fish) V. 1818, VI. 1820.  
*Muraenidae* (Eels) II. 1803.  
*Hemirhamphidae* (Gar-fish) IV. 1699, VI. 1821.  
*Exocoetidae* (Flying-fish) V. 1818.  
*Syngnathidae* (Sea-horses) II. 1802.  
*Sphyracidae* (Sea-pike) II. 1791.  
*Mugilidae* (Grey Mullet) II. 1791, VI. 1821.  
*Serranidae* (Sea Perch) I. 1792.  
*Hypoplectrodes nigrorubrum*, Cuv. and Val. II. 1826.  
*Colpognathus dentex*, Cuv. and Val. II. 1826.  
*Acanthistius serratus*, Cuv. and Val. II. 1826.  
*Sillaginidae* (Whiting) II. 1827.  
*Isosillago punctata*, Cuv. and Val. II. 1826.  
*Arripidae* (Salmon).  
*Arripis trutta*, Forst. II. 1827.  
*Mullidae* (Red Mullet).  
*Upeneichthys porosus*, Cuv. and Val. II. 1791.  
*Sparidae* (Bream) V. 1699.  
*Pagrosomus auratus*, Forst. II. 1802, IV. 1822, V. 1699.  
*Chaetodontidae* (Coral-fish) IV. 1801, V. 1801, VI. 1801.  
*Enoplosidae* (Old Wife).  
*Enoplosus armatus*, Shaw V. 1699, VI. 1699.  
*Labridae* (Parrot-fish) I. 1792, II. 1803, IV. 1801.  
*Odacidae* (Rock Whiting).  
*Odax radiatus*, Q. and G.  
*Gempylidae* (Barracouta) V. 1818.  
*Scombridae* (Mackerel) II. 1803, IV. 1803.  
*Gobiidae* (Mud-skippers) VI. 1820.  
*Scorpaenidae* (Rock-cod) II. 1803.  
*Echeneididae* (Sucking-fish) (?) 1699, VI. 1821.  
*Balistidae* (Leather-jackets) II. 1791, IV. 1801, V. 1801,  
 VI. 1801.  
*Ostraciontidae* (Box-fish) II. 1803, IV. 1801.  
*Tetrodontidae* (Blow-fish) IV. 1801.  
*Tetrodon argenteus*, Lacep. IV. 1822.  
*Antennariidae* (Angler-fish) VI. 1801.

## TUNICATA.

ASCIDIACEA (Sea-squirts).

*Cynthiidae.*

*Boltenia australis*, Q. & G. II. 1826.

*Boltenia gibbosa*, Heller II. 1826.

*Ascidia reticulata*, Q. & G. II. 1826.

*Ascidia spinosa*, Q. & G. II. 1826.

*Distomidae.*

*Colella pedunculata*, Q. & G. II. 1826.

## THALIACEA.

*Salpidae* IV. 1801, V. 1801.

*Salpa scutigera-confœderata*, Cuv.-Forsk. II. 1826.

## CRUSTACEA.

CIRRIPEDIA (Barnacles) II. 1803.

*Lepadidae* II. 1821.

*Pollicipedidae.*

*Ibla quadrivalvis*, Cuvier II. 1826.

*Balanidae.* II. 1826.

*Stomatopoda* (Mantis-shrimps) VI. 1821.

## DECAPODA.

## MACRURA.

*Scyllaridae* (Marine Crayfish) VI. 1821.

*Parastacidae* (Freshwater Crayfish) II. 1803.

BRACHYURA (Crabs) IV. 1629.

*Portunidae* (Swimming-Crabs) IV. 1801.

## INSECTA.

## ORTHOPTERA.

*Blattidae* (Cockroaches) IV. 1801.

*Acridiidae* (Grasshoppers) IV. 1801, V. 1801.

*Gryllidae* (Crickets) IV. 1801, V. 1801.

## NEUROPTERA.

*Termitidae* (White-ants) IV. 1629, V. 1818, VI. 1699.

*Libellulidae* (Dragon-flies) V. 1818.

HYMENOPTERA VI. 1820.

*Formicidae* (Ants) II. 1803, III. 1801, IV. 1801, V. 1801.

COLEOPTERA (Beetles) II. 1791.

*Scarabaeidae* (Cockehafers) II. 1829.

*Haplonycha astrolabei*, Boisd. II. 1826.

*Curculionidae* (Weevils).

*Cherrus australis*, Boisd. II. 1826.

*Catasarcus impressipennis*, Boisd. II. 1826.

*Euomus scorio*, Boisd. II. 1826.

*Periteles lateralis*, Boisd. II. 1826.

*Cryptocephalus monochroa*, Boisd. II. 1826.

## LEPIDOPTERA.

*Sphingidae* (Hawk-moths) VI. 1822.

DIPTERA (Flies) III. 1697, IV. 1629, V. 1801, VI. 1688.

*Culicidae* (Mosquitoes) I. 1792, II. 1791, VI. 1820.

*Tabanidae* (Horse-flies) IV. 1803.

*Muscidae* I. 1792, II. 1791.

*Musca australis*, Boisd. II. 1826.

#### ARACHNIDA.

SCORPIONIDA (Scorpions) VI. 1820.

#### MYRIAPODA.

CHILOPODA (Centipedes) VI. 1820.

#### ANNELIDA.

POLYCHAETA (Bristle-worms).

*Amphinomidae* V. 1803.

#### MOLLUSCA.

AMPHINEURA.

POLYPLACOPHORA (Chitons) II. 1821.

*Ischnochitonidae*.

*Ischnochiton sulcatus*, Q. & G. II. 1826.

*Chitonidae*.

*Acanthopleura georgiaua*, Q. & G. II. 1826.

GASTROPODA.

*Fissurellidae*.

*Scutus anatinus*, Don. II. 1826.

*Submarginula australis*, Q. & G. II. 1826.

*S. rugosa*, Q. & G. II. 1826.

*Haliotidae* (Ear-shells) I. 1792, II. 1803, III. 1822.

*Haliotis albicante*, Q. & G. II. 1826.

*Stomatiidae* II. 1803.

*Gena auricula*, Lamk. II. 1826.

*Trochidae* (Top-shells) II. 1803, III. 1822, IV. 1801.

*Trochus caeruleus*, Lamk. IV. 1822, VI. 1826.

*T. luteus*, Q. & G. II. 1826.

*Cantharidus irisodontes*, Q. & G. II. 1826.

*Angaria delphinus*, Linn. var. *laciniata*, Lamk. VI. 1821.

*Turbinidae* I. 1792, II. 1803.

*Phasianella australis*, Gmel. II. 1826.

*P. ventricosa*, Q. & G. II. 1826.

*Turbo stamineus*, Martyn var. *lamellosus*, Brod. II. 1826.

*Astraliium fimbriatum*, Lamk. II. 1826.

*Neritidae* II. 1821, V. 1818.

*Patellidae* (Limpets) I. 1792, II. 1803, IV. 1699, V. 1699,  
VI. 1699.

*Patella compressa*, Lamk. II. 1826.

*Patella neglecta*, Gray II. 1822.

*Acmaeidae*.

*Acmaea conoidea*, Q. & G. II. 1826.



- Aemaea elongata*, Q. & G. II. 1826.  
*A. septiformis*, Q. & G. II. 1826.  
*A. punctata*, Q. & G. II. 1826.  
*Littorinidae* (Periwinkles) IV. 1699, V. 1699, VI. 1688.  
*Hipponicidae* (Cap-shells).  
*Hipponyx conicus*, Schum. II. 1826.  
*Hipponyx foliacea*, Q. & G. II. 1826.  
*Cerithiidae* IV. 1818.  
*Ceratoptilus levis*, Q. & G. II. 1826.  
*Vermetidae* (Worm-shells) II. 1803.  
*Serpulus siphon*, Lamk. II. 1826.  
*Vermetus dentiferus*, Lamk. IV. 1818.  
*Ianthinidae* II. 1803.  
*Scalaridae*.  
*Epitonium granosum*, Q. & G. II. 1826.  
*Tritonidae*.  
*Triton leucostomum*, Lamk. II. 1826.  
*Dolidae* IV. 1818, V. 1801.  
*Tonna perdrix*, Linn. IV. 1818.  
*Naticidae* IV. 1801.  
*Polinices plumbea*, Lamk. II. 1826.  
*Sinum zonale*, Q. & G. II. 1826.  
*Cypraeidae* (Cowries) IV. 1822.  
*Volutidae*.  
*Scaphella nivosa*, Lamk. IV. 1801.  
*S. undulata*, Lamk. II. 1826, IV. 1818.  
*Cymbium flammeum*, Bolten IV. 1818, VI. 1822.  
*Terebridae*, II. 1803.  
*Conidae* (Cone-shells) II. 1803, IV. 1801.  
*Conus luteus*, Q. & G. II. 1826.  
*Fusidae*.  
*Fusus australis*, Q. & G. II. 1826.  
*Buccinidae* (Whelks) II. 1821, III. 1822, IV. 1822, V. 1818,  
 VI. 1699.  
*Buccinum costatum*, Q. & G. II. 1826.  
*B. litiopa*, Rang. II. 1826.  
*Muricidae* (Dog-whelks) II. 1803, III. 1822.  
*Amphibolidae*.  
*Salinator fragilis*, Lamk. II. 1826.  
*Limnaeidae* (Pond-snails)  
*Isidora georgiana*, Q. & G. II. 1826.  
*Succineidae* II. 1826.  
*Bulimulidae* IV. 1801.  
*Bothriembryon kingii*, Gray II. 1818.  
*Helicidae* (Snails) IV. 1801.  
*Rhytididae*.  
*Rhytida georgiana*, Q. and G. II. 1826.

*Zonitidae.*

*Vitrina nigra*, Q. and G. II. 1826.

*Scaphandridae.*

*Cylichna arachis*, Q. and G. II. 1826.

*Bullidae* II. 1803, III. 1822.

*Bullaria australis*, Q. and G. II. 1826.

*Haminea brevis*, Q. and G. II. 1826.

*Akera bicincta*, Q. and G. II. 1826.

*Pleurobranchidae* IV. 1818.

## SCAPHIPODA.

*Dentaliidae* (Tusk-shells) II. 1803.

## LAMELLIBRANCHIA.

*Solenomyidae*. II. 1826.

*Pinnidae* (Razor-shells) II. 1821, IV. 1818, VI. 1822.

*Pteriidae* (Pearl-Oysters) II. 1803, IV. 1699, VI. 1699.

*Pteria papilionacea*, Lamk. II. 1826.

*Ostreidae* (Oysters) II. 1791, IV. 1697, V. 1699, VI. 1699.

*Pectinidae* (Scallops).

*Pecten lividus*, Lamk. II. 1826.

*Mytilidae* (Mussels) II. 1803, IV. 1699, VI. 1688.

*Chamidae* IV. 1822, VI. 1822.

*Cardiidae* (Cockles) II. 1821, IV. 1699, VI. 1688.

*Veneridae.*

*Venus zelandica*, Q. and G. II. 1826.

*Solenidae* II. 1826.

## CEPHALODA.

*Sepiidae* (Cuttle-fish) IV. 1627.

*Octopodidae* (Octopus) IV. 1801.

## BRACHIOPODA (Lamp-Shells).

## TESTICARDINES.

*Terebratulidae.*

*Waldheimia flavescens*, Lamk. II. 1826.

## ECHINODERMATA.

## CRINOIDEA (Sea-Lilies)

*Comatulidae* (Feather-Stars).

*Ptilometra macronema*, J. Müll. II. 1826.

## OPHIUROIDEA (Brittle-Stars) IV. 1801.

## ECHINOIDEA (Sea-Urchins) IV. 1801.

## HOLOTHUROIDEA (Sea-Cucumbers) IV. 1822, V. 1818, VI. 1803.

*Aspidochirotae.*

*Holothuria fulva*, Q. and G. II. 1826.

## COELENTERATA.

## MILLEPORINA.

*Milleporidae* IV. 1801.

## GYMNOBLASTEA.

*Tubulariidae* II. 1826.

SIPHONOPHORA.

*Porpitidae* IV. 1801, V. 1801.

SCYPHOZOA (Medusae) I. 1802, IV. 1801, V. 1801, VI. 1801.

ALCYONARIA.

*Aleyonium terminale*, Q. and G. II. 1826.

ACTINIARIA (Sea-Anemones)

*Actinia tuberculosa*, Q. and G. II. 1826.

MADREPORARIA (Corals).

*Madreporidae* IV. 1801.

*Poritidae*.

*Porites subdigitata*, Lamk. VI. 1821.

*Turbinoliidae*.

*Caryophyllia fastigiata*, Lamk. VI. 1821.

*Astraeidae*.

*Astraea galaxea*, Lamk. II. 1826.

*Fam. incert.*

*Lobophyllia aurea*, Q. and G.

*Explanaria mesenterina*, Lamk.

CTENOPHORA.

NUDA.

*Beroidae* IV. 1801.

PORIFERA (Sponges) II. 1827, III. 1801, IV. 1818.

PROTOZOA.

FORAMINIFERA.

*Miliolidae*.

*Orbitolites complanata*, Lamk. III. 1801.